

C
CK4.H
1900-01

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS.

OKLAHOMA
AGRICULTURAL AND
MECHANICAL COLLEGE

CATALOGUE, 1900--01

OKLAHOMA

**AGRICULTURAL AND
MECHANICAL COLLEGE**

Compliments of A. C. Scott.

STILLWATER, OKLAHOMA.

OKLAHOMA

**AGRICULTURAL AND
MECHANICAL COLLEGE**

ANNUAL CATALOGUE, 1900-01

WITH ANNOUNCEMENTS FOR 1901-02

STILLWATER, OKLAHOMA

COLLEGE PRESS

College Calendar, 1901-02

Entrance Examinations, September 9-10.

Fall Term begins September 11; closes December 19.

Winter Term begins January 1; closes March 22.

Spring Term begins March 26; closes June 3.

The usual holidays at Thanksgiving, Christmas, Oklahoma Day,
and Decoration Day.

Wednesday, September 11, will be devoted to the registration
of students.

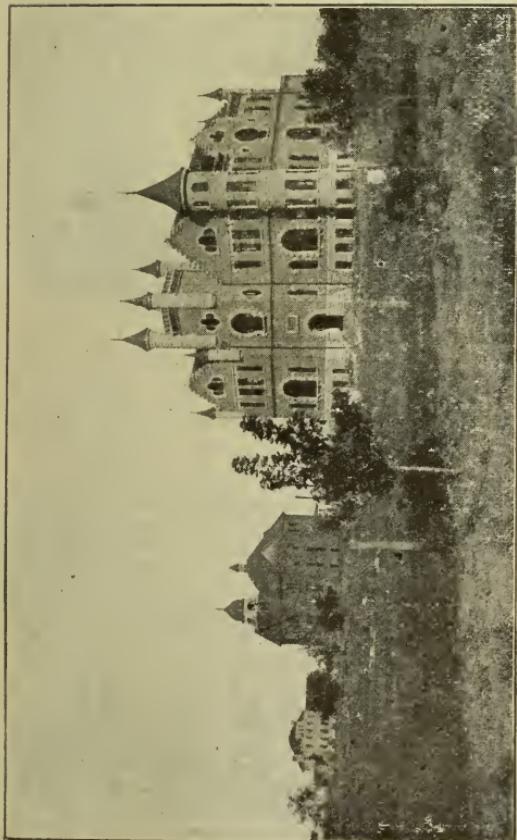
Board of Regents.

GOVERNOR WILLIAM M. JENKINS, <i>ex officio</i>	Guthrie
HON. FRANK J. WIKOFF, President.....	Stillwater
HON. CHARLES J. BENSON, Treasurer.....	Shawnee
HON. J. P. GANDY	Alva
HON. H. C. R. BRODBOLL	Ponca City
HON. W. H. COYLE.....	Guthrie

Experiment Station Staff

JOHN FIELDS, B. S.....	Director and Chemist
L. L. LEWIS, M. S., D. V. M.	Veterinarian
F. C. BURTIS, M. S.....	Agriculturist
E. MEAD WILCOX, Ph. D.....	Botanist and Entomologist
O. M. MORRIS, B. S.	Horticulturist
A. B. McREYNOLDS, B. S.....	Assistant in Chemistry
J. S. MALONE, B. S.....	Assistant in Agriculture
H. M. HAND	Clerk
GEORGINA M. HOLT.....	Stenographer

VIEW OF CAMPUS FROM SOUTHEAST



ANOTHER VIEW





FOR INSTRUCTION IN PHYSIOLOGY.



BOTANIC GARDEN.

FACULTY

ANGELO C. SCOTT, M. A., LL. M.

President, and Professor of the English Language and Literature.

GEORGE L. HOLTER, B. S.

Professor of Chemistry.

LOWERY L. LEWIS, M. S., D. V. M.

Professor of Zoology and Veterinary Science.

JOHN FIELDS, B. S.

Director of Experiment Station, and Station Chemist; Dean of Short Courses.

RICHARD E. CHANDLER, M. M. E.

Professor of Mechanical Engineering and Physics.

JAMES W. MEANS.

Professor of Mathematics.

FRANK C. BURTIS, M. S.

Professor of Agriculture and Horticulture.

FRANK A. HUTTO, B. S.

Professor of History and Political Science, and Librarian.

EDWIN MEAD WILCOX, Ph. D.

Professor of Botany and Entomology.

M. MAUD GARDINER, B. S.

Professor of Domestic Science.

ROBERT H. TUCKER, M. A.

Associate Professor of Languages.

GEORGE W. STEVENS, B. A.

Principal Preparatory Department.

MAY OVERSTREET.

Assistant in Preparatory Department.

OSCAR M. MORRIS, B. S.

Instructor in Horticulture.

CARL A. BESSEY, A. B., B. S.

Assistant in Mechanical Engineering.

ARTHUR B. McREYNOLDS, B. S.

Assistant Station Chemist.

GEORGE W. STILES, JR., B. S.

Assistant in Zoology and Veterinary Science.

JOHN S. MALONE, B. S.

Assistant in Agriculture.

GEORGE K. HOWE, B. S.

Instructor in Physics and Mathematics.

GEORGINA M. HOLT.

Instructor in Stenography and Typewriting, and Official Stenographer.

GEORGE B. GELDER.

Superintendent of Printing Department, and Instructor in Printing.

CORA MILTIMORE, B. S.

Assistant Librarian.

HENRY M. HAND.

Secretary.

Founding and History

Historical An act of congress, approved July 2, 1862, gave to each state which accepted its provisions within two years 30,000 acres of government land for each one of its representatives in congress, the proceeds to be applied to the endowment and maintenance of the agricultural, or as Senator Morrill, the author of the act, preferred to call them, the "national" colleges.

A subsequent act, approved August 10, 1890, extended the endowment of these institutions by an appropriation of \$15,000 a year, increasing each year by the sum of \$1,000 until the annual amount should be \$25,000. This limit was therefore reached in 1900.

On March 7, 1887, an act of congress was approved, appropriating annually to colleges thus established \$15,000, for the maintenance of experiment stations "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science".

This institution receives the benefit of the last two acts of congress only. By an act of the legislative assembly of Oklahoma which took effect December 25, 1890, the provisions of these acts were assented to, and the College and Experiment Station located at Stillwater, in Payne County. The institution opened in the fall of 1891.

Scope of Work.

It has been said above that this institution does not receive the benefits of the act of 1862. In order, however, to understand clearly the scope of work contemplated in these institutions the language of both acts should be quoted. The act of 1862 makes its grant for "the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding the other scientific and classical studies, and including

military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life". The appropriation under the act of 1890 is to be applied "only to instruction in agriculture, the mechanic arts, and the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their application in the industries of life, and to the facilities for such instruction."

From these two expressions of the legislative purpose it will be seen that the popular impression that the courses of study in these institutions are narrowly confined within the limits marked by the two words "agricultural" and "mechanical", is erroneous. While special facilities are provided, and special instruction given, in agriculture and its branches, and in the mechanic arts, it is quite within the province of this institution to give specialized training in biology, in chemistry, in political science, in domestic science, in commercial lines, in the English language and literature. Even this liberal limitation may be extended within reasonable bounds—determined in accordance with the general nature of the institution—by the territory, insofar as it chooses to pay for the additional instruction. In a word the law contemplates the providing, through these institutions, of a "liberal and practical" education. It does not lose sight of the inspiration of the higher learning, but it has particularly in view the equipping of the student for efficiency in the activities of life.

Our several courses of instruction, as set out in subsequent pages, will be seen to be arranged upon this conception of the scope of our work.

Resources

Morrill Fund The Oklahoma Agricultural and Mechanical College receives from the government every year the sum of \$22,500. This is the \$25,000 "Morrill Fund" above referred to, less \$2,500 set apart from it by the territor-

ial legislature for the benefit of the Agricultural and Normal University at Langston. It is to be expended for instruction and appliances only, the territory of Oklahoma providing buildings, repairs etc.

Hatch Fund The Agricultural Experiment Station, which is a department of the college, receives from the United States government an annual appropriation of \$15,000, to be used solely for experimentation and the publication of results. This is known as the "Hatch Fund".

Territorial Tax Levy The territorial law provides for the annual levy of one tenth of a mill on the taxable property of the territory for the benefit of the college. This on present valuations, reaches about \$5,500

Lease Land Money The law also sets apart one fifth of the income derived from the rental of the lands granted to the territory for the benefit of the institutions of higher learning. This amounts to about \$5,000 a year.

Other Sources There are other slight sources of income, not necessary to detail here, which raise the total annual income of the college and station to about \$50,000.

Building Appropriation The last legislature provided special levies on the taxable property of the territory for the purpose of erecting additional buildings for the college, which will aggregate about \$54,000 during the next two years.

Equipment.

Grounds and Buildings The college campus and experiment station grounds occupy 200 acres of land. Four main buildings are now occupied for the purposes of instruction and experimentation: The Assembly building (containing the auditorium, a number of lecture rooms, and a basement occupied by the department of Domestic Economy), the Library building (containing the library, lecture rooms, and the laboratories and museums of the department of zoology); the chemistry building (containing the lecture rooms and laboratories of the

department of chemistry, and also the offices and chemical laboratories of the experiment station); and the Mechanical building (containing the lecture rooms and shops of the mechanical department, and the printing office). Besides these, three minor buildings are occupied for purposes of instruction in agriculture, horticulture, and botany and entomology.

Library The college has a well selected library of 7,000 volumes. The books are kept in fire-proof stack rooms, and a commodious reading room is provided immediately adjoining. Students are permitted under proper restrictions to take books to their rooms. The best reference books and the leading periodical publications are at the disposal of students.

Scientific Appliances In chemistry, physics, mineralogy, botany, entomology, zoology, physiology, agriculture, horticulture, and veterinary science the college is equipped with the latest and best appliances and apparatus, consisting of collections, models, charts, maps, microscopes, balances, etc., representing an outlay by the government of approximately \$70,000.

Mechanical Department The equipment of this department includes a machine shop, a carpenter and pattern-making shop, a blacksmith shop, a foundry, and a drawing room, besides the electrical engineering laboratory. The equipment of the machine shop includes lathes, shaper, milling machine, planer, a universal grinding machine, drill press, and an extensive assortment of small tools. The wood working shop is supplied with a circular saw, band saw, wood turning lathes, a pattern-maker's lathe, and work benches with complete sets of carpenter tools. The blacksmith shop contains eight down draft forges, each supplied with a complete set of blacksmith tools. The foundry is supplied with an 18-inch cupola, core oven, sand sifter, and foundry benches and tools. The air blast is furnished by an electrically driven fan. In the electrical engineering laboratory the machinery has been selected and arranged in such a manner as to afford students the greatest facility for acquiring a thorough knowledge of the different types of electrical machinery.

and their management. Especial attention has been devoted to alternating polyphase machinery—justified, it is believed, by the rapid development of this branch of engineering. The equipment includes a 30 kilowatt dynamo, directly connected to a 10x10 automatic engine, furnishing power for the other electrical machines, which include direct and alternating-current dynamos and motors, static and phase-changing transformers, and synchronous converters, all of the latest designs. The department is well supplied with accessory apparatus, including voltmeters, ammeters, and wattmeters of wide range, as well as galvanometers and other instruments of greater precision. There is also a good selection of physical apparatus for purposes of demonstration and instruction.

Department of Chemistry This department is located in the new chemistry building, occupying the basement, a lecture room and offices on the first floor, the entire second floor, and the attic—the remainder of the building being occupied by the experiment station. The lecture room seats comfortably seventy-five students, besides containing desks and extensive equipment for demonstration purposes. The quantitative, qualitative, and private laboratories and sample rooms occupy the second floor. The laboratories are fitted with work desks specially designed to meet the demands of the student. Each student has before him two gas cocks, two water cocks, and a trough of running water, and thus need never leave his desk unless it be for a special reagent or for work at the hydrogen-sulfid hood. There is located in the basement of the building a 150-light Tirrill equalizing gas machine which furnishes light and laboratory heat of the finest quality. The department is equipped with the best of modern apparatus, glassware, and chemicals. This large supply of working material greatly facilitates independent laboratory work. In the more advanced work the student is supplied with a complement of burettes, pipettes, graduated flasks, desiccators, Gooch crucibles, etc. It is the experience of instructors in teaching quantitative analysis that the best results are obtained by having not

more than three, preferably two, students for each analytical balance. In recognition of this, the department is equipped with two E. & A., one Rueprecht, and three Sartorius analytical balances. There are in addition to these, one E. & A assay ballance, one gas analysis balance, and three other balances for rough weighing. In sugar and sugar beet analysis, aside from the ordinary methods used, the student is taught the use of the polariscope and has at his disposal one Schmidt and Haensch polariscope, equipped with a double set of observation tubes. In the study of mineralogy there is a well chosen collection of several hundred specimens, supplemented by about 300 pounds of working material. Aside from these minerals there are 75 glass and 60 wooden crystal models, and 21 models of precious stones.

**Botany and
Entomology**

The equipment of this department is sufficient to enable it to carry on the work as outlined. Large additions of apparatus for the study of plant physiology will soon be made. The present equipment includes 5 compound microscopes of the Zeiss make with numerous objectives ranging from four inch to one-twelfth inch oil immersion; 16 simple microscopes; a large assortment of hand lenses and of instruments for enlarging objects observed under the microscope, including good microphotographic apparatus; a dark room and camera for inside and outside work; several hundred slide mounts of low forms of vegetable life and plant fibers; a large collection of plant tissues, preserved for class use, and a fine assortment of reagents, many models illustrating the anatomy of flowers, and fruits; several models showing the anatomy of insects, and preparations showing the metamorphoses of the same; a complete set of 100 Kny wall charts, partly colored, showing the different forms of plant growth and reproduction from the lowest plants to the ordinary flowering plant; beside these are 22 Dr. A. Peter charts, all colored, that show representative plants of many orders; four W. and A. K. Johnston charts which show various features of plant structure; good collection of woods, fibers, seeds, etc., and also economic, medi-

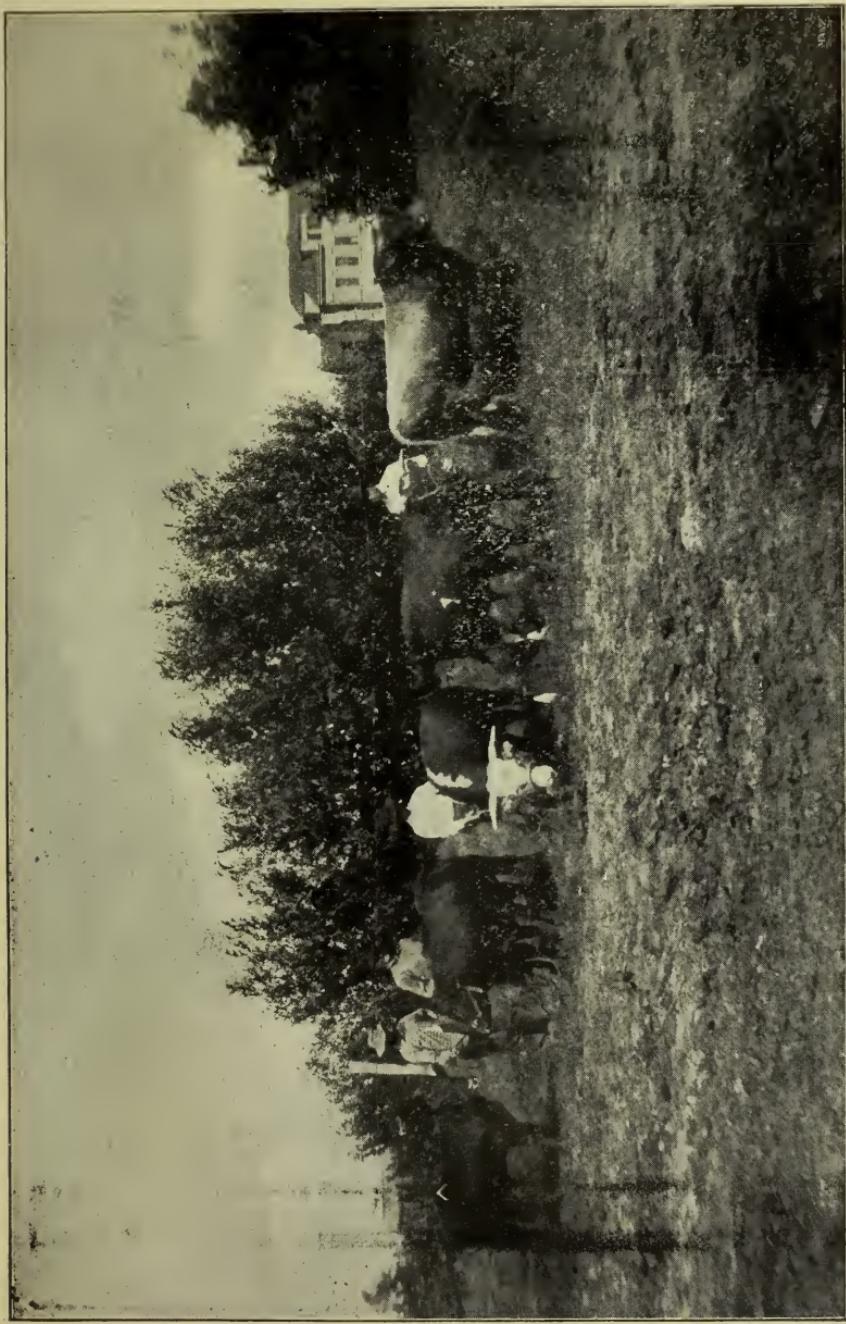
cinal, and agricultural plants. The herbarium of the college contains a large and authentic collection of fungi, algae, mosses, and lichens, to which large additions have been made during the past year. Both the botanical and entomological collections of the experiment station are available for reference when necessary. One important part of the equipment of the department is a bed containing 2000 plants and over a hundred species of hardy perennial herbs. These are for class use, in whatever way they may be required. A green-house is well supplied with plants for observation and study.

Zoology and Veterinary Science This department occupies quarters in the library building, consisting of a laboratory for general biological work and a lecture room. The apparatus for general biological work consists of twenty compound Zeiss and Lietz microscopes, with complete sets of eye pieces and objectives, micrometers and cameras, microtomes, thirty sets of dissecting instruments, and photomicrographic apparatus. The department is also well supplied with dissectible models of the various types of animals, including an Auzoux model of the horse; with skeletons of most of the lower animals and of man, and with numerous prepared skins of birds and animals for purposes of demonstration and instruction. A collection of the birds and mammals of Oklahoma has been authorized and is now in progress, and a general museum is being installed. For the work in physiology there are models of the various organs of the body, wall charts, and skeletons, mounted and unmounted.

Department of Agriculture The equipment for agricultural instruction has been greatly increased during the past year. The agricultural and horticultural departments receive great benefit from the experiment station, which is located at the college. This branch of the institution has a large number of experiments continually under way, which constitute the most valuable object lessons to the students. The farm includes 200 acres, two thirds of which are devoted to agriculture. The experiment station uses all the fields for crop experiments, and thus the students see the various crops under cultivation; and

the study of crop production is further illustrated by a good collection of grasses and field crops exhibited in bundles and show bottles. The live stock equipment affords an excellent opportunity to study the improved breeds of stock. The pure-bred stock represented is as follows: Cattle, Shorthorn, Herefords, Aberdeen-Angus, and Red Polls; swine, Poland Chinas, Berkshires, Duroc-Jerseys, and Chester Whites; sheep, Shropshires, and Cotswolds; horses, Percheron. In addition to the pure breeds of the various classes of stock, grades of the different breeds are kept for comparison. Breeds not represented on the farm are studied from engravings conveniently arranged on wall charts and in albums. The large number of feeding experiments carried on at all times by the experiment station affords the student ample opportunity to apply the principles laid down in the class room. Samples of all standard farm machinery are kept in a commodious implement room where easy access can be had to them, and the student has the opportunity to see these in operation, many of them under draft tests. A farm dairy will be equipped in time for next year's work. Hand separators, milk tests, cream vats, milk coolers, and other apparatus that aid in the production of high grade dairy products will be included.

Department This department is equipped with a complete line of garden seeders; tools for lawn work; spray pumps **Horticulture** with fittings; eighteen complete sets of garden tools; complete models of all common varieties of apples, peaches, plums, pears, and cherries; charts showing the diseases of fruit and garden plants; an herbarium of cultivated plants showing most of the different plants cultivated in the United States; five complete sets of instruments used in plant breeding; five compound microscopes and accessories. All the leading publications, domestic and foreign, along horticultural lines, are received regularly. In the way of practical operations, this department is well situated, having at its command the extensive vineyards and orchards of the experiment station. The horticultural grounds include sixty acres with more than fifty thousand trees



Angus

Red Poll

Shorthorn

Jersey

PURE-BRED BULLS

WILLOW LAKE—ON THE CAMPUS



and vines. For instruction in forestry, a plantation of forty thousand trees is available, both for observation and study and for instruction in propagation, pruning, and transplanting.

Department of Domestic Economy This department is at present located in the basement of Assembly Hall, and includes a kitchen laboratory, class dining room, sewing room, and office. The kitchen laboratory has equipment sufficient to enable twelve pupils to work at one time, and consists of twelve conveniently arranged desks, furnished with all the dishes and cooking utensils necessary for individual work; two cases for the larger utensils and supplies and illustrative material; one gas range, one gasoline range, and three small gas burners on the work desks; charts and samples to aid in teaching and studying the composition and preparation of the different foods. The equipment of the class dining room consists of a full set of dining room furniture and dishes used by the classes studying dining room management and serving. The sewing room is equipped with one large cutting table and six sewing tables, all made with drawers in which to keep garments and material; five sewing machines of different makes; a large mirror for use in dress fitting; illustrative material such as cotton, silk, and flax fibers, needles etc, and twenty four sewing chairs. It is expected that different and more commodious quarters will be provided during the coming year.

Other Departments The departments of the English language and literature, of foreign languages, and of history and political economy are properly supplied with facilities for instruction, and are represented with special fulness in the library. The department of mathematics and civil engineering has extensive appliances for demonstration, instruction, surveying, and other practical work. The printing office is suitably equipped for instruction, which is its primary purpose. The regular college publication, *The College Paper*, is issued by this department, under student management, and the general job work of the college, including the annual catalogue is done by it. The department of stenography and typewriting is equipped with seven typewriters and other necessary appliances.

Agricultural Experiment Station

This department of the college is maintained for the purpose of conducting experiments relating to the development of our agricultural interests and the widening of our knowledge on subjects in any way connected with farm life. Experiments in crop production, stock raising and feeding, fruits and vegetable growing, are conducted on a 200 acre farm belonging to the college. In the laboratories animal and plant diseases, insects, the composition of feeding stuffs, and kindred subjects are investigated by trained specialists, each of whom has devoted many years to study and preparation for the particular class of work committed to him.

While the station takes no direct part in instruction, its work affords a valuable source of illustration and a stimulus to students in every branch of science. With but two exceptions, members of the station staff are also engaged in instruction in the college. Students showing special aptness are frequently employed in the work of the station and thus gain valuable experience and are enabled to earn something toward paying their expenses.

The chief purpose of the station is to discover new truths and new applications of old ones. It properly leaves to the college the work of instruction in systematized knowledge.

Bulletins reporting results of completed investigation are issued by the station and sent free to all who request them.

Requirements For Admission

To enter the freshman class the applicant, under the territorial law, must pass a satisfactory examination in the following subjects: Reading, spelling, penmanship, geography, United States history, grammar, and arithmetic. It is urgently recommended, also, that he be well prepared in physical geography, and civil government, as these subjects are covered in our preparatory department. He should be able to pass the examination for a second grade certificate under the territorial law.

In order to meet the wants of those whose school facilities have not been sufficient to prepare them for the collegiate work, a preparatory or sub-collegiate course, extending through two years, has been provided, which gives a thorough and approved training in all the branches above mentioned and in civil government, physical geography, and free-hand drawing. Applicants to enter this department must be fourteen years of age.

Courses of Instruction

All regular collegiate courses cover a period of four years, and lead to the degree of Bachelor of Science. The courses are as follows:

- I. General Science and Literature course.
- II. Agricultural course—including Horticulture and Veterinary Science.
- III. Mechanical Engineering course.
- IV. Courses in Special Science:
 1. Chemistry.
 2. Biology, with majors in Botany or in Zoology.

General Science and Literature Course

While not more favored or more important than the other courses, this may be called the major course of the institution. It is arranged to the end of giving a good working higher education. Its first two years, it will be observed, are practically duplicated in all the other courses, the technical and expert work in the specialized courses beginning generally at the end of the sophomore year, when the student more fully understands his preferences and capacity.

The Course in Detail

[The figures indicate the number of recitation hours per week; figures in parentheses indicate hours of practical work per week.]

Freshman Year		
FALL TERM	WINTER TERM	SPRING TERM
Rhetoric	3 Rhetoric	3 Etymology and Structure 3
German or Latin	3 German or Latin	3 German or Latin
Algebra	5 Algebra	5 Algebra
Physiology	4 Physics	4 Geometry

Sewing—women.....(5)	Sewing—women.....(5)	Hygiene—women	2
Drawing or Book-keeping—women(5)	Drawing—women(5)	Cooking—women	(6)
Drawing—men(5)	Drawing or Nursery work—men(10)	Woodwork or Stock-judging—men.....	(8)
Book-keeping—men....(5)			

Sophomore Year

Advanced Rhetoric.....2	Theme work.....2	Theme work.....2	2
German or Latin.....3	German or Latin.....3	German or Latin.....3	3
Algebra.....3	Geometry.....5	Trigonometry.....5	5
Geometry.....2	Chemistry3 (4)	Chemistry2 (4)	
Chemistry.....3 (4)	English History*.....5	Botany.....4 (4)	
Zoology.....3 (4)	Public Speaking.....(2)		

*For English History women may substitute Domestic Economy—Cooking (10)

Junior Year

English Literature.....2	English Literature	American Literature.....2	2
German or Latin.....3	German or Latin.....3	German or Latin.....3	3
Physics.....4 (2)	Physics.....4	Entomology.....3 (4)	
Materia Medica or { 3 (4)	Veterinary Medicine { 3 (4)	Cellular Biology { 3 (4)	
Botany	or Botany.....{ 3 (4)	or Botany.....{ 3 (4)	
Feeds and Feeding	Farm Dairying, Evolution of Cultivated	Principles of Breeding.	
Analytical Geometry	Plants and Small	Crops, Calculus,	
Political Economy, or	Fruits, Analytical Ge-	Sociology, or Domestic	
Domestic Economy (women)	ometry, Constitu-	Science (women)	5
	tional Law, or		
	Domestic Science (wo-		
	men		
	Public Speaking		2

Senior Year

Literature.....3	Literature	Literature	3
Latin or German.....3	Latin or German.....3	Latin or German	3
Geology4 (2)	Bacteriology2 (4)	Bacteriology2 (4)	
Law.....2	General History.....3	General History.....3	
Political and Industrial History.....3	Psychology.....2	Psychology.....2	
Botany, Embryology, or Calculus.....4	Botany, Forestry or Calculus { 5	Thesis	(10)

Agricultural Course

This course is designed to afford scientific training and practical knowledge to young men who expect to follow agriculture as a life work, or to prepare themselves as instructors of others therein. Short winter courses in agriculture are also offered by the college for the benefit of farmers and others interested, who are not in a position to matriculate as regular students of the institution. Detailed announcement of these courses will be found on another page.

The Course in Detail**Freshman Year**

FALL TERM	WINTER TERM	SPRING TERM
Rhetoric.....3	Rhetoric	Etymology and Structure 3
Breeds3	Propagation of Plants.....3	Breeds3
Algebra.....5	Algebra.....5	Algebra.....5

Physiology	4	Physics	4	Geometry.....	5
Drawing.....	(5)	Nursery Work.....	(10)	Stock Judging	(8)
Book-keeping.....	(5)				

Sophomore Year

Advanced Rhetoric	2	Theme work.....	2	Theme work.....	2
Geometry.....	2	Geometry	5	Trigonometry	5
Algebra.....	3	Pomology	3	Soils.....	3
Spraying.....	1	Chemistry.....	3 (4)	Chemistry.....	2 (4)
Vegetable Gardening.....	2	English History	5	Botany	4 (4)
Zoology	3 (4)	Public Speaking	(2)		
Chemistry.....	3 (4)				

Junior Year

Physics	4 (2)	Veterinary Medicine.....	5	Entomology	3 (4)
Botany	3 (4)	Botany	3 (4)	Botany.....	3(4)
Chemistry	3 (4)	Farm Dairying.....	3 (4)	Principles of Breeding.....	5
Feeds and Feeding	5	Evolution Cultivated Plants.....	3	Crops	5
		Small Fruits.....	5		

Senior Year

Geology.....	4 (2)	General History.....	3	General History.....	3
Law.....	2	Bacteriology	2 (4)	Bacteriology.....	2 (4)
Political and Industrial History	3	Forestry	5 (2)	History of Agriculture....	3
Farm Equipment	3	Blacksmithing	(8)	Irrigation and Farm Drainage	2
Landscape Gardening.....	3	German	3	German	3
German.....	2			Thesis	(10)
Shop work	(4)				

Course in Mechanical Engineering

This course is intended to prepare young men for positions of usefulness and responsibility in the mechanical and electrical professions. The first two years are devoted to a thorough grounding in English, mathematics, and physics, mechanical drawing and shop work being also given. The last two years are devoted to the more technical engineering studies, including the higher mathematics, machine designing, steam machinery, and strength of materials. An electrical engineering course is given during the last two years, embracing the subjects of electrical measurements, direct and alternating current dynamos, motors, transformers, systems of power distribution, electric lighting, electric railways, etc. Short winter courses are also offered in this department for those who are unable to matriculate for the full course. Detailed announcement of these courses will be found on another page.

The Course in Detail

Freshman Year

FALL TERM	WINTER TERM	SPRING TERM
Rhetoric.....3	Rhetoric.....3	Etymology and Structure 3
German3	German or Latin.....3	German3
Algebra.....5	Algebra.....5	Algebra.....5
Physiology.....4	Physics.....4	Geometry5
Free hand Drawing.....(6)	Woodwork(16)	Foundry and Pattern Mak-
Bookkeeping.....(5)		ing(8)

Sophomore Year

Advanced Rhetoric.....2	Theme work.....2	Theme Work2
German3	Geometry.....5	Trigonometry5
Algebra.....3	Chemistry.....3 (4)	Chemistry.....2 (4)
Geometry.....2	Descriptive Geometry5	Descriptive Geometry5
Special Algebra2	Mechanical Drawing(6)	Mechanical Drawing(4)
Chemistry3 (4)	Public Speaking.....(2)	Surveying(4)
Mechanical Drawing.....(6)		

Junior Year

Physics.....4 (2)	Physics.....4	Electricity and Magnet-
Analytical Geometry....5	Analytical Geometry....5	ism4 (2)
Kinematics.....3	Applied Mechanics.....3	Calculus5
Steam Boilers.....3	Valve Gears.....3	Applied Mechanics4
Blacksmith Shop.....(8)	Machine Shop(10)	Indicators2
		Machine Shop(8)

Senior Year

Calculus4	Calculus4	General History3
Political and Industrial History.....3	General History.....3	Thermodynamics5
Machine Design4 (4)	Machine Design4 (6)	Machine Design4
Electrical Engineering4 (6)	Electrical Engineering4 (4)	Electrical Engineering3
		Thesis(10)

Course in Special Science—Chemistry.

With the present arrangement of courses of study it is found very satisfactory to have all students, throughout their sophomore year, take the same amount of chemistry regardless of the work they propose to elect thereafter. To these students it is the policy of the department to teach thoroughly the elements of chemistry, instead of covering thinly the broad domain of the science.

But in the specialized course the student must go more deeply and familiarly into the subject. Its object is to lead him to think, act, and work for himself intelligently; to acquaint himself thoroughly with the science on the subject; to give him independence of thought and action and to familiarize him with its practical applications in modern life. The scope of the work is broad and the standard of efficiency and thoroughness required is high. The time students may work in the laboratories is governed only by the time actually set aside for such

work and all other times when they are not performing assigned college work. Since the analyst becomes proficient only through practice, it follows that the more time he spends in the laboratory the higher and more nearly perfect will become his standard of excellence.

The Course in Detail

Freshman Year		
FALL TERM	WINTER TERM	SPRING TERM
Rhetoric.....3	Rhetoric.....3	Etymology and Structure 3
German.....3	German.....3	German.....3
Algebra.....5	Algebra.....5	Algebra.....5
Physiology.....4	Physics.....4	Geometry.....5
Sewing—women.....(5)	Sewing—women.....(5)	Hygiene—women.....2
Drawing or Book-keeping—women (5)	Drawing—women.....(5)	Cooking—women(6)
Drawing—men.....(5)	Drawing or	Woodwork or
Book-keeping—men.....(5)	Nursery Work—men...(10)	Stock-judging—men.(8)

Sophomore Year		
Advanced Rhetoric.....2	Theme work.....2	Theme work.....2
German.....3	German.....3	German.....3
Algebra.....3	Geometry.....5	Trigonometry.....5
Geometry.....2	Chemistry.....3 (4)	Chemistry.....2 (4)
Chemistry.....3 (4)	English History*.....5	Botany.....4 (4)
Zoology.....3 (4)	Public Speaking.....(2)	

*For English History women may substitute Domestic Economy—Cooking (10)

Junior Year		
English Literature.....2	English Literature.....2	American Literature.....2
German.....3	German.....3	German.....3
Physics.....4 (2)	Physics.....4	Electricity.....4 (2)
Chemistry.....3 (4)	Chemistry.....3 (4)	Chemistry.....3 (4)
Botany, <i>Materia Medica, Analytical</i>	Botany, Veterinary	Chemistry Practicum... (10)
Geometry, Political	Medicine, Analytical	
Economy, or Domes- Economy, —women	Geometry, Constitu- tional Law, or Domes- tic Economy—women	
	Public Speaking.....(2)	

Senior Year		
Geology.....4 (2)	Bacteriology.....2 (4)	Bacteriology.....2 (4)
Law.....2	General History.....3	General History.....3
Political and Industrial History.....3	Metallurgy.....5	Chemistry.....3 (10)
Chemistry.....3 (4)	Chemistry.....3 (10)	Thesis.....(10)
Mineralogy.....5		

Course in Special Science—Biology.

This course is designed to afford the student a thorough knowledge of the fundamental principles of general biology. Plants and animals are studied as living organisms and their genetic relationships are plainly shown. Wherever possible, practical applications of the principles derived are made. At

the beginning of the Senior year an opportunity is offered to specialize in either Botany or Zoology. In the spring term students devote their time to the investigation of some approved subject and present the results as a thesis for graduation.

The Course in Detail

Freshman Year

FALL TERM	WINTER TERM	SPRING TERM
Rhetoric.....3	Rhetoric.....3	Etymology and Structure 3
German or Latin.....3	German or Latin.....3	German or Latin.....3
Algebra.....5	Algebra.....5	Algebra.....5
Physiology.....4	Physics.....4	Geometry.....5
Sewing—women.....(5)	Sewing—women.....(5)	Hygiene—women.....2
Drawing or	Drawing or	Cooking—women.....(6)
Book-keeping—women (5)	Book-keeping—men (5)	Woodwork or
Drawing—men(5)	Nursery Work—men...(10)	Stock-judging—men.(8)
Book-keeping—men....(5)		

Sophomore Year

Advanced Rhetoric.....2	Theme work.....2	Theme work.....2
German or Latin.....3	German or Latin.....3	German or Latin.....3
Algebra.....3	Geometry.....5	Trigonometry.....5
Geometry.....2	Chemistry.....3 (4)	Chemistry.....2 (4)
Chemistry.....3 (4)	English History*.....5	Botany.....4 (4)
Zoology.....3 (4)	Public Speaking.....(2)	

*For English History women may substitute Domestic Economy—Cooking (10)

Junior Year

English Literature.....2	English Literature	American Literature.....2
German or Latin.....3	German or Latin.....3	German or Latin.....3
Physics.....4 (2)	Physics.....4	Botany.....3 (4)
Materia Medica.....4 (2)	Veterinary Medicine.....5	Cellular Biology3 (4)
Botany3 (4)	Botany3 (4)	Entomology.....3 (4)
	Public Speaking.....(2)	

Senior Year

Literature	3	Literature	3
Geology.....4 (2)	General History { {	General History { {	3
Botany or Zoology....2 (4)	Psychology { {	Psychology { {	2
Law.....2	or	or	
Political and Industrial History.....3	Botany.....3 (4)	Botany.....5	
Latin or German.....3	Bacteriology.....2 (4)	Latin or German.....3	
	Latin or German.....3	Bacteriology.....2 (4)	
	Forestry	Thesis.....(10)	

Short Winter Course in Agriculture, Horticulture, and the Mechanic Arts.

During a portion of the winter term practical instruction is given in matters directly related to farming, stock raising, and fruit growing, and the management of steam engines, with special attention to machinery used on farms. Any person over sixteen years of age may take this work, no examinations for

admission being required. A circular describing the work of these courses in detail will be issued in November. In 1902, they will cover eight weeks, from January 7 to February 28. The following list contains the work which will be given at that time:

- Breeds and Breeding of Live Stock—18 lectures.
 - Diseases of Live Stock—18 lectures.
 - Stock Feeding—12 lectures.
 - Farm Dairying—9 lectures.
 - Crops for Oklahoma—18 lectures.
 - Farm Machinery and Equipment—18 lectures.
 - Steam Engines and Boilers—8 lectures.
 - Maintenance of Soil Fertility—9 lectures.
 - Orchards and small fruits—18 lectures.
 - Troublesome Insects—9 lectures.
 - Legislation and Laws Affecting Farmers—12 lectures.
 - Elementary Botany—9 lectures.
 - Farm Hygiene; Water Supply—10 lectures.
 - Farm Accounts, Mortgages, etc.—12 lectures.
-

Work in blacksmithing, steam engines and boilers, veterinary practice, and practical horticulture will be given in the afternoon in so far as the facilities of the college will allow.

The lectures will be supplemented by practical work in the dairy, barns, shops, and orchard, designed to fix and illustrate the methods and practices advised. It is practical instruction throughout and planned to give the most that is possible in so short a time.

Course in Typewriting and Stenography.

The course in stenography and typewriting covers from six to nine months, and aims to give the student a practical, expert, and usable knowledge of the subjects. In the case of students taking this course special attention is given to their instruction in English.

Preparatory Department

The work of this department is intended as a preparation for all of the other courses. It is not required to be taken if the student has received equivalent instruction elsewhere.

Students, likewise, may take the second year only, if found sufficiently well prepared.

24 OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

First year. The work this year is devoted to instruction in grammar, geography, arithmetic, United States history, spelling, punctuation, penmanship reading, and rhetorical exercises.

Second year. The second year reviews and completes the study of arithmetic, grammar, geography, and United States history; continues the work in penmanship and reading; and takes up the subject of civil government, free hand drawing, composition, lecture and field studies for male students on agriculture or horticulture, and physical geography. Public rhetorical exercises are required this year.

Schedule of Lectures and Recitations

Note:—These schedules cover the work in all courses. The portion to be taken by the student must be determined by reference to the particular course desired, as set out in the foregoing pages. Laboratory work in all departments is carried in the afternoons, and is not scheduled herein.]

FALL TERM, 1901.

		TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8:30	Freshman, Latin Division.	Algebra	Algebra	Algebra	Algebra	Algebra
	Freshman, German Division	Physiology	Physiology	Physiology	Physiology	Physiology
	Sophomore	Algebra	Geometry	Geometry	Geometry	Algebra
	Junior	Chemistry	Kinematics	German	German	Chemistry
9:25	Senior	Latin	Latin	Latin	Latin	Kinematics
				Political and Industrial History	Industrial History	Latin
				Law	Law	Algebra
						Physics
10:20	Freshman, Latin Division.	Latin	Algebra	Algebra	Algebra	Zoology
	Freshman, German Division	Algebra	Rhetoric	Rhetoric	Rhetoric	Physics
	Sophomore	Zoology	Physics	Zoology	Zoology	Mineralogy
	Junior	Physics	Mineralogy	German	Mineralogy	Farm Equipment
11:15	Senior	Mineralogy	Landscape Gardening	Mineralogy	Landscape Gardening	Literature
		Farm Equipment	Machine Design	Literature	Machine Design	Machine Design
		Literature		Farm Equipment		
		Machine Design		Machine Design		
12:15	Freshman, Latin Division.	Rhetoric	Breeds	Breeds	Breeds	Rhetoric
	Freshman, German Division	Rhetoric	Latin	Latin	Latin	Rhetoric
	Sophomore	Rhetoric	Vegetable Gardening	Vegetable Gardening	Vegetable Gardening	Zoology
	Junior	Chemistry	Chemistry	Chemistry	Chemistry	Calculus
1:15	Senior					

	Freshman, Latin Division Freshman, German Division Sophomore	Physiology German	Physiology Latin	Physiology German	Physiology German
11:15	Junior	Anal. Geometry Political Econ- omy Feeds and Feed- ing Domestic Econ- omy Electrical En- gineering Senior	Anal. Geometry Political Econ- omy Feeds and Feed- ing Domestic Econ- omy Electrical En- gineering Geology	Spraying Anal. Geometry Political Econ- omy Feeds and Feed- ing Domestic Econ- omy Electrical En- gineering Chemistry	Spraying Anal. Geometry Political Econ- omy Feeds and Feed- ing Domestic Econ- omy Electrical En- gineering Geology

WINTER TERM, 1902

		TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8:30	Freshman, Latin Division. Freshman, German Division Sophomore	Rhetoric Rhetoric Geometry Chemistry Applied Me- chanics General History	Latin Geometry English Litera- ture Psychology	Rhetoric Rhetoric Geometry Chemistry Applied Me- chanics General History	Latin Geometry English Litera- ture Psychology	Rhetoric Rhetoric Geometry Chemistry Applied Me- chanics General History
9:25	Junior					
	Senior					

10:20	Freshman, Latin Division Algebra German, German Division	Algebra German English History Descriptive Geometry	Algebra German English History Descriptive Geometry	Algebra German English History Descriptive Geometry	Algebra German Latin Valve Gears																									
	Sophomore Junior Senior	Latin Valve Gears Metallurgy Botany Forestry Calculus	Geometry Metallurgy Botany Forestry Calculus	Latin Valve Gears Metallurgy Botany Forestry Calculus	Geometry Metallurgy Botany Forestry Calculus																									
	Freshman, Latin Division Physics German, German Division	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin																									
	Sophomore Junior Senior	German Pomology Botany Analytical Geometry Constitutional Law Veterinary Medicine Domestic Economy Chemistry Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering																									
11:15	Freshman, Latin Division Physics German, German Division	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin																									
	Sophomore Junior Senior	German Pomology Botany Analytical Geometry Constitutional Law Veterinary Medicine Domestic Economy Chemistry Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering																									
	Freshman, Latin Division Physics German, German Division	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin	Physics Physics Latin																									
	Sophomore Junior Senior	German Pomology Botany Analytical Geometry Constitutional Law Veterinary Medicine Domestic Economy Chemistry Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering	Pomology Botany Analytical Geometry Constitutional Law Domestic Economy Veterinary Medicine Domestic Economy Bacteriology Electrical Engineering																									
SPRING TERM, 1902																														
8:30		<table border="1"> <thead> <tr> <th>TUESDAY</th> <th>WEDNESDAY</th> <th>THURSDAY</th> <th>FRIDAY</th> <th>SATURDAY</th> </tr> </thead> <tbody> <tr> <td>Freshman, Latin Division..</td><td>Etymology and Structure</td><td>Breeds (men, Agric. c.)</td><td>Etymology and Structure</td><td>Breeds (men, Agric. c.)</td></tr> <tr> <td>Freshman, German Division</td><td>Etymology and Structure</td><td>Hygiene (women)</td><td>Etymology and Structure</td><td>Hygiene (women)</td></tr> <tr> <td>Sophomore</td><td>Botany</td><td>Botany</td><td>Descriptive Geometry</td><td>Botany</td></tr> <tr> <td></td><td>Descriptive Geometry</td><td>Descriptive Geometry</td><td>Descriptive Geometry</td><td>Descriptive Geometry</td></tr> </tbody> </table>				TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	Freshman, Latin Division..	Etymology and Structure	Breeds (men, Agric. c.)	Etymology and Structure	Breeds (men, Agric. c.)	Freshman, German Division	Etymology and Structure	Hygiene (women)	Etymology and Structure	Hygiene (women)	Sophomore	Botany	Botany	Descriptive Geometry	Botany		Descriptive Geometry	Descriptive Geometry	Descriptive Geometry	Descriptive Geometry
TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY																										
Freshman, Latin Division..	Etymology and Structure	Breeds (men, Agric. c.)	Etymology and Structure	Breeds (men, Agric. c.)																										
Freshman, German Division	Etymology and Structure	Hygiene (women)	Etymology and Structure	Hygiene (women)																										
Sophomore	Botany	Botany	Descriptive Geometry	Botany																										
	Descriptive Geometry	Descriptive Geometry	Descriptive Geometry	Descriptive Geometry																										

Note:—The Sophomore Latin class not above provided for will recite at 3:30 p. m., of Tuesday

Senior	Freshman, Latin Division. Freshman, German Division Sophomore	Chemistry Applied Mechanics Crops General History	Latin Algebra Chemistry	Latin Applied Mechanics Crops Psychology	Chemistry Applied Mechanics Crops General History
Junior	Junior	Electricity and Magnetism Botany	Algebra Theme Work	Ch. Pastries { Crops General History	Algebra German Mechanics { Crops General History
9:35	Freshman, Latin Division. Freshman, German Division Sophomore	Irrigation and Farm Drainage Machine Design Literature	Electricity and 'Magnetism. Botany	Irrigation and Farm Drainage Machine Design Literature	Electricity and 'Magnetism. Botany
10:20	Senior	Machine Design Bacteriology	Machine Design 'Bacteriology	Machine Design 'Bacteriology	Machine Design 'Literature
	Freshman, Latin Division. Freshman, German Division Sophomore	Algebra Trigonometry Entomology	Algebra Trigonometry Entomology	Algebra Trigonometry Indicators	Algebra German Trigonometry
	Junior	Thermodynamics History of Agriculture	Thermodynamics History of Agriculture	Thermodynamics History of Agriculture	Thermodynamics 'History of Agriculture
	Senior	Geometry German Latin	Geometry German Latin	Geometry Principles of Breeding Calculus Sociology Domestic Economy	Geometry German Latin
	Freshman, Latin Division. Freshman, German Division Sophomore	Cellular Biology Principles of Breeding Calculus Sociology Domestic Economy	Cellular Biology Principles of Breeding Calculus Sociology Domestic Economy	Cellular Biology Principles of Breeding Calculus Sociology Domestic Economy	Geometry German Latin
	Junior	Chemistry Engineering	Chemistry Engineering	Chemistry Engineering	Chemistry
	Senior				

NOTE:—Afternoon recitations: Junior Latin, Saturday at 3:30; Junior German, Tuesday, Thursday, and Friday, at 3:30; Freshman Agriculture ("Breeds"), Tuesday and Thursday, at 1:30; Sophomore Agriculture ("Soils"), Tuesday, Thursday, and Friday, at 3:30.

DEPARTMENTS OF INSTRUCTION

It is purposed under this title to give a more extended account of the topics covered in the several departments.

The English Language and Literature

The President
Professor Tucker

The study of the English language and literature runs through the four years of the general science and literature course.

1. RHETORIC. This subject occupies the first two terms of the freshman year. It begins with a comprehensive review of grammar, and a checking up of the ordinary errors and slovenliness of speech. Practical and painstaking instruction is given in punctuation, in letter writing, and in the preparation of manuscript for the press. The principles of invention, the elements of style, the different forms of composition, and other matters belonging to elementary rhetoric are then taken up preparatory to the advanced study of the same subject the next year.

2. ETYMOLOGY AND STRUCTURE. The spring term of the freshman year is devoted to this work. It is, in brief, the study of word building, with special reference to the Latin and Saxon elements of the language.

3. ADVANCED RHETORIC AND THEME WORK. This extends through the sophomore year. It covers in a more ample and philosophical form the work of the freshman year, and gives almost exclusive attention during the last half of the year to practical theme writing. This work begins with the writing of narratives, both imaginative and within the student's experience, followed by newspaper writing, argumentative writing, and so on to abstract themes. In addition to the regular class-room work in the freshman and sophomore years, a limited number of books are assigned as parallel reading. These books are se-

lected with a view to their adaptability and application to the work in hand, and they constitute the basis of examination at stated intervals during the term.

4. LITERATURE. The Junior year in this department is given to the study of English and American literature. While this year's work is historical, rather than philosophical or critical, yet the subject is presented by periods, the characteristics of which are carefully studied. Extended readings from representative authors are given, the comparative method being constantly kept in view. Written work is required in the discretion of the instructor, both as fixing the student's grasp of the subject, and as further illustrating the principles of rhetoric. A reading course in Shakespeare is given in connection with this year's work.

5. LITERARY INTERPRETATION AND CRITICISM—MASTERPIECES
The senior year opens with a view of the philosophy of the development of our literature, and the principles of literary interpretation and criticism. This work is based upon approved texts, and is reinforced by lectures. The last half of the year is given to the critical study of the masterpieces of the language in poetry and prose. The course closes with a critical study of living writers.

6. WORK IN SPECIAL SCIENCE COURSES. In the agricultural, horticultural, and mechanical engineering courses, the work in English and literature above detailed ceases at the end of the sophomore year. In the other special science courses the literature studies of the junior year are retained.

Agriculture

Professor Burtis

The following analysis applies to students taking the specialized course in agriculture (see page 18). It indicates also, however, the elective work in agriculture and horticulture which is offered in the other courses.

STOCK JUDGING. Freshman year, spring term. A thorough training in score card work. Study of animal form as an index of qualities; selection of animals to give the greatest excellence in beef, dairy, mutton, wool, and pork products. Study of pedigrees. Most of the time is put in at the barns with the score card comparing the different types of animals and judging them for the purposes for which they are raised, and scoring the different breeds according to the official score cards.

BREEDS OF LIVE STOCK. Freshman year, fall and spring terms. In the first term's work only the most important points of the leading breeds of live stock will be taken up. In the second term all the breeds will be taken up in detail and further score card practice given.

CROPS. Junior year, spring term. Choice, uses, and preservation; varieties and their improvements; planting and cultivation; rotations. Examination of crops in the fields and from preserved samples given special attention.

SOILS. Sophomore year, spring term. Origin; chemical and physical composition; classification; handling to obtain conditions best suited to plant growth,

FEEDS AND FEEDING. Junior year, fall term. Nutrition; composition of feeds and their preservation as affecting quality; compounding rations for growth, maintenance, fattening, and milk; feeding and preparing stock for market. Observing and taking data in the feeding under way on the farm will be a feature of the work.

FARM DAIRYING. Junior year, winter term. A study is made of the methods and apparatus for the production and handling of dairy products in a wholesome and economical manner on the farm. Composition of milk and the causes that affect it and bring about changes. Practical work in milk testing, separating milk, ripening cream, churning, and preparing butter and milk for the market will be given in the dairy room.

PRINCIPLES OF BREEDING. Junior year, spring term. The

laws of heredity, variation, atavism, and correlation are given special attention. Prepotency and fecundity, and the influences that affect them are discussed. In-and-in breeding, line breeding, cross-breeding, grading, and the formation of breeds are taken up in detail.

FARM EQUIPMENT. Senior year, spring term. Buildings, fences, roadways; implements and machinery; selection of farms and farm management.

HISTORY OF AGRICULTURE. Senior year, spring term. Development and improvement of agriculture; methods and causes which have effected changes; markets, past, present, and future.

IRRIGATION AND FARM DRAINAGE. Senior year, spring term. Field for irrigation; amount of water required for various crops; methods; sources of water; cost. Lands which may be improved by drainage; methods; cost. Protecting land from erosion.

Horticulture

Mr. Morris

The following analysis applies to students taking the specialized course in agriculture (see page 18). It indicates also, however, the elective work in agriculture and horticulture which is offered in the other courses.

PROPAGATION OF PLANTS. Winter term of freshman year. Study of methods of propagating plants by seeds, buds, grafts, cuttings, layers, etc.; methods of transplanting and handling young plants; "The Nursery Book", by L. H. Baily. The afternoon work will be practical work in budding, grafting, pruning, training, and transplanting and spraying plants. Packing plants and fruits.

PRINCIPLES OF VEGETABLE GARDENING. Fall term of sophomore year. Garden vegetables, methods of cultivation and marketing.

PRINCIPLES OF SPRAYING. Fall term of sophomore year. Spraying solutions and their preparation; spraying machinery its use and care.

POMOLOGY. Winter term of sophomore year. Study of orchard and small fruits, and cultivation and management of orchards.

EVOLUTION OF CULTIVATED PLANTS. Winter term, Junior year. Origin and character of varieties, methods, and principles of plant breeding; variation of plants under cultivation; lectures and tests. Afternoon, actual work in plant breeding.

SMALL FRUITS. Winter term of junior year. Cultivation and management of small fruits.

FORESTRY. Winter term, junior year. Study of requirements for forest growth, characteristics of forest trees, care and preservation of forests; lectures and tests. Afternoon work: Observation, measurement, and comparison of forest growth, study and test of different woods, etc.

Mechanical Engineering

Professor Chandler

Mr. Howe

Mr. Shane

The following analysis applies to students taking the mechanical engineering course (see page 19). It indicates also, however, the elective or regular work in the other courses, as shown in the detailed outlines.

1. FRESHMAN PHYSICS. Freshman year, winter term. Elementary course in general physics.
2. DESCRIPTIVE GEOMETRY. Sophomore year, fall and winter terms. Orthographic projection of lines, planes, and surfaces. Axonometric projection, surfaces of the second order; intersections, shades and shadows, and linear perspective.
3. MECHANICAL DRAWING. Sophomore year; fall, winter, and spring terms; afternoon. Projection on right and oblique planes, intersections of surfaces and solids; machine sketching; making of complete working drawings, tracing and blue-printing.

4. KINEMATICS. Sophomore year, spring term. Study and design of mechanical movements, including gearing, belting, links, etc.

5. JUNIOR PHYSICS. Junior year, fall and winter terms. Advanced course in mechanics, sound, heat, light, and electricity.

6. APPLIED MECHANICS. Junior year; fall, winter, and spring terms. Statics, moment of inertia, hydrostatics, hydraulics, theory of structures, kinetics.

7. STEAM BOILERS. Junior year, fall term. Materials of construction, steam boiler design, care and operation of boilers.

8. STEAM AND OTHER ENGINES. Junior year, winter term. Elementary theory of steam, gas, and oil engines; valve mechanism, etc.

9. INDICATORS AND VALVE GEARS. Junior year, spring term. Detailed study of valve gears, and valve setting; use of indicators.

10. THERMODYNAMICS. Senior year, spring term. Advanced discussion of the theory of heat engines.

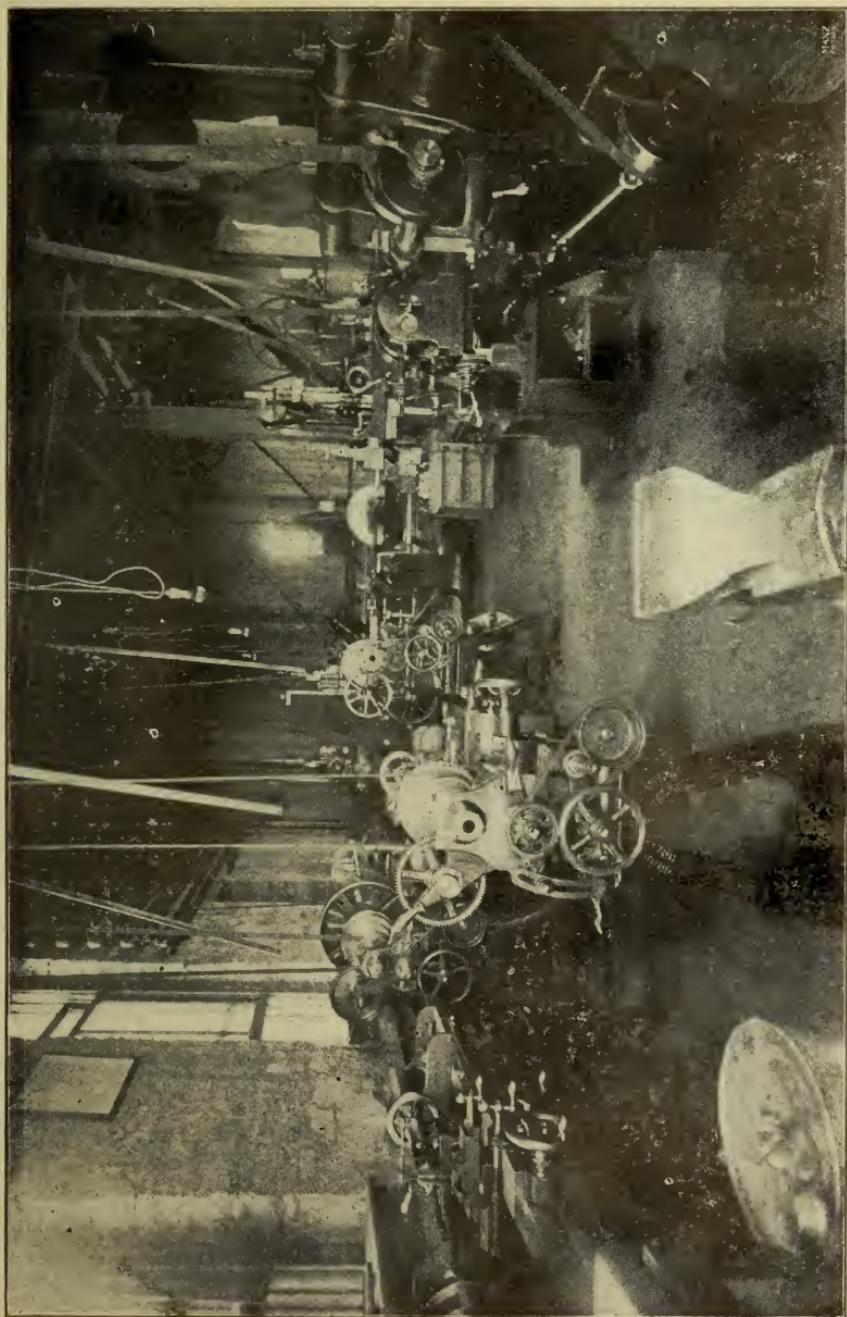
11. MACHINE DESIGN. Senior year; fall, winter, and spring terms; with afternoon work in drawing in the fall and winter terms. Determination of the proper proportions of machine parts, such as screws, bolts, nuts, shafts, and pulleys; also the designing of the various parts of the steam engine.

12. ELECTRICITY AND MAGNETISM. Junior year, spring term. Advanced study of electrostatics, magnetism, electric current, and batteries. The elements of alternating currents, electric lighting and power.

13. ELECTRICITY AND MAGNETISM PRACTICUM. Junior year, spring term. Measurement of magnetism, resistance, and electromotive force; study of batteries; use of galvanometers.

14. ELECTRICAL ENGINEERING. Senior year; fall, winter, and spring terms. Electromagnetism and magnetic circuit; direct

PORTION OF MACHINE SHOP



and alternating current dynamoës and motors; electric lighting electric railways; systems of transmission and distribution.

15. ELECTRICAL ENGINEERING PRACTICUM. Senior year; fall and winter terms, afternoon. Tests of dynamos, motors, transformers; direct current and one, two, and three phase systems; study of arc and incandescent lamps; measurement of power and efficiency.

16. WOOD WORKING. Freshman year, winter term. Bench work in wood: sawing, planing, and joining; center and chuck turning in wood. Instruction in care and use of tools.

17. PATTERN-MAKING AND FOUNDRY. Freshman year, spring term. Construction of patterns; moulding in sand; core making; melting iron and pouring castings.

18. BLACKSMITHING. Junior year, fall term. Iron and steel forging; drawing, upsetting, welding and tempering.

19. MACHINE SHOP. Junior year, winter term. Filing and chipping, metal work on lathes, planer, shaper, and milling machine.

Mathematics

Professor Means
Mr. Howe

1. ALGEBRA. Fall, winter, and spring terms of the freshman year, and fall term of the sophomore year. A thorough drill in the elements of algebra, including fractions, simultaneous equations, and radical expressions; also higher algebra, covering quadratic equations, simple and indeterminate equations, theory of exponents, ratio and variation, and the binomial and exponential theorems.

2. GEOMETRY. Spring term of the freshman, and fall and winter terms of the sophomore year. The elements of plane geometry; involving the relations of lines and planes in space, the area of surfaces, the volume of solids, and original solutions.

3. TRIGONOMETRY AND SURVEYING. Spring term, sophomore year. The use of logarithms, and the determination and use of trigonometric formulæ, with field work in surveying.

4. ANALYTICAL GEOMETRY. Fall and winter term, junior year. The reference of points and lines to co-ordinate axes, and the deduction of equations of the straight lines and curves of the conic sections.

5. CALCULUS. Spring term, junior year, fall and winter terms, senior year. Differential calculus, development and application of fundamental principles and formulæ; integral calculus, determination of formulæ, applications in determining length of curves, areas, center of gravity, etc.

Chemistry

Professor Holter

1. GENERAL COURSE. All students in all courses are required to take chemistry throughout the sophomore year.

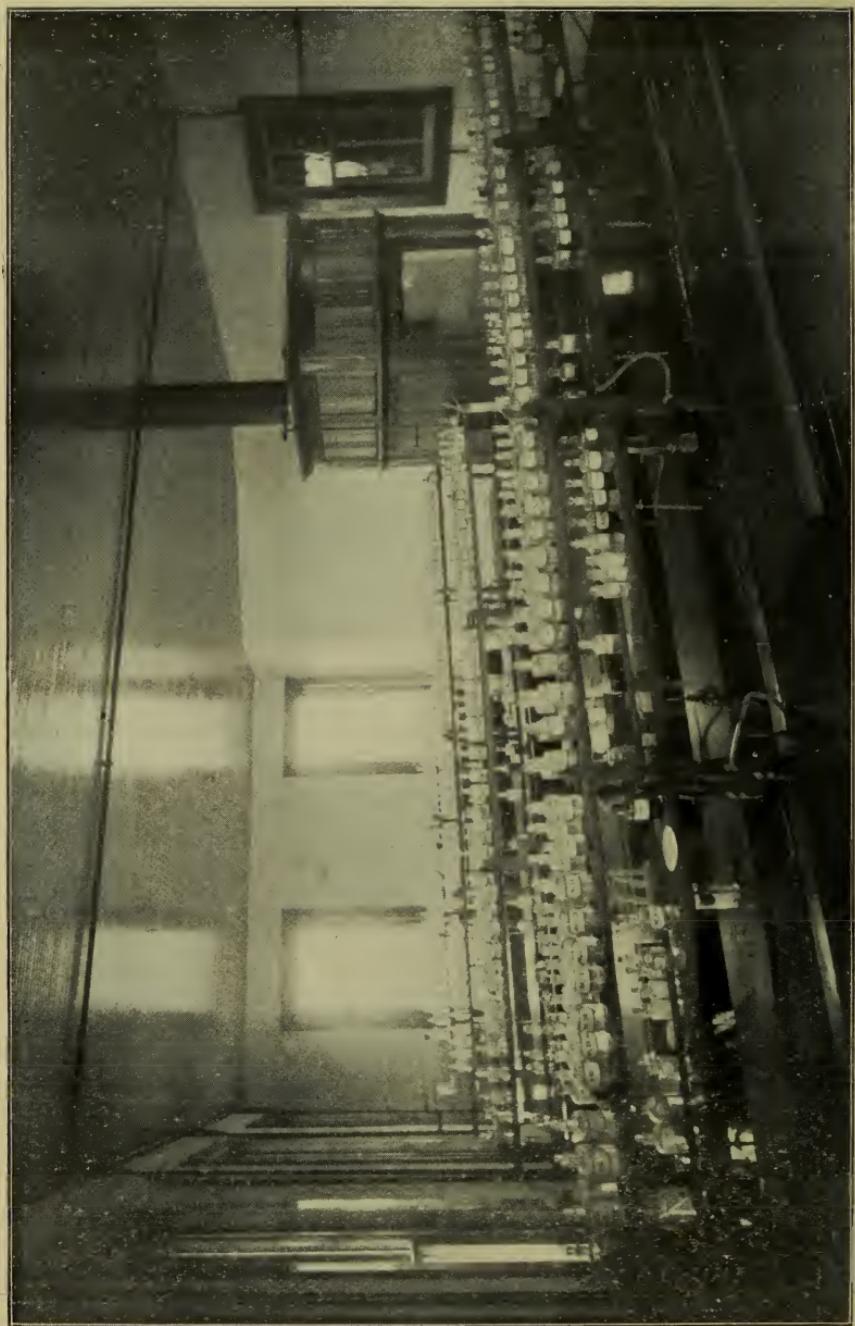
In the fall term the non-metals are studied and discussed in the lecture room, and simple manipulations, preparation of salts and gases, and group separations, are taught in the laboratory. In the winter and spring terms the metals are taken up in the lecture room and complete qualitative analysis worked out in the laboratory. Each student is supplied with a full set of apparatus suitable to his work and is required to spend at least two hundred hours in the laboratory during the year. It is found that each year there are students who work in the laboratory over two hundred and fifty hours. While the laboratory period is from 1:30 to 3:30, it is the custom, as well as the policy, of the department to open the laboratory immediately after the noon hour and allow students to remain until 5 o'clock if they desire to do so. Again, while there are assigned days for laboratory work in chemistry, all students working in the chemical laboratories have permission to work there on any other days so long as this work does not interfere with other college duties. In the lecture room special attention is given to the arithmetic of chemistry and the working out of chemical equations. Experience teaches that without the arithmetical application of the equations, by means of numerous practical problems, the fundamental principles involved in the equations



QUANTITATIVE LABORATORY



BALANCE ROOM
CHEMISTRY BUILDING



THE QUANTITATIVE LABORATORY,
CHEMISTRY BUILDING.

are wholly lost upon the average student. Text books used are: Pond's Non-Metals, Richter's Inorganic Chemistry, in the class room, and in the laboratory, Williams's Chemical Preparations and Harris's Qualitative Analysis.

2. SPECIALIZED COURSE. Junior year: Qualitative Analysis, using in the laboratory Talbot's work during the entire year, supplemented by Fresenius, Thorpe, etc., Minimum number of hours, 260. In the class room the texts used are: Fall term, Remsen's Theoretical Chemistry; winter and spring terms, Bernthsen's Organic Chemistry. The recitations are very fully supplemented by numerous discussions, lectures, and demonstrations.

Senior year: Special topics are taken up during this year and such text books are studied as will best meet the requirements of the class. Instead of adopting, as in the junior year, certain texts, it is found quite satisfactory to propose a number of books that may be studied, consistently with the work, and then allow the class to select from this list.

The laboratory work has a wide range and includes the chemistry of experiment station work, metallurgy of iron and steel, sugar analysis, sugar beet analysis, food adulterations and their detection, preparation of organic compounds, physiological chemistry, mineralogy, abstracting of chemical literature (in connection with special laboratory work), graduation thesis.

Botany and Entomology

Dr. Wilcox.

1. GENERAL BOTANY. This course is intended to afford a general introduction to the subject of botany and is a prerequisite of all other courses in botany. The fundamental principles of biology are developed from the standpoint of living plants, while the work in the laboratory covers the essentials of general morphology and classification of the entire vegetable kingdom; this is accomplished by the critical examination of types. Occasional field trips and the collection of illustrative specimens will introduce the student to the surrounding flora.

Lectures and Recitations: Four hours per week during the Spring term.

Laboratory Work: Tuesday and Thursday, 1:30-3:30.

Required of all sophomores except those in the course in Mechanical Engineering.

2. COMPARATIVE ANATOMY OF THE SPERMATOPHYTES. A thorough study of the structure and activities of the plant cell is followed by an examination of the typical tissues and their distribution with special reference to their functions. Students are required to become acquainted with the general methods of botanical microtechnique, including the killing, fixing, imbedding, sectioning, staining, mounting, and drawing of the tissues studied.

Lectures and Recitations: Tuesday, Thursday, and Saturday during the fall term.

Laboratory Work: Wednesday and Friday, 1:30-3:30.

Required of juniors in the courses in biology and agriculture; elective for juniors in the course in general science and literature, and chemistry,

3. PLANT PHYSIOLOGY. This is a course of carefully selected experiments supplemented by selected readings, conferences, and lectures. The aim is to develop a good knowledge of the general functions of seed-plants, such as absorption, carbon-dioxide assimilation, transpiration and respiration.

Lectures and Recitations: Tuesday, Thursday, and Saturday during the winter term.

Laboratory Work: Wednesday and Friday, 1:30-3:30.

Required of juniors in the courses in biology and agriculture; elective for juniors in the course in general science and literature, and chemistry.

4. PLANT PATHOLOGY. Critical studies of selected types of the groups of fungi from the basis of a series of lectures and recitations concerning the morphology, relationships, and particularly the economic importance of the species.

Lectures and Recitations: Tuesday, Thursday, and Saturday during the spring term.

Laboratory Work: Wednesday and Friday, 1:30-3:30.

Required of juniors in the courses in biology and agriculture; elective for juniors in the course of general science and literature.

5. ECOLOGICAL ANATOMY. Considering plants in relationship with their environment, the main topics discussed are the structure and development of the various plant organs in relation to their special functions of nutrition, reproduction, protection, etc. The laboratory work will be devoted to the anatomical study of the tissues adapted for absorption, carbon-dioxid assimilation, conduction, transpiration, respiration, protection, storage, secretion, and movement. Field work will call attention to the action of the various ecological factors and their effects in determining the composition of the different plant societies.

Lectures and Recitations: Tuesday and Saturday during the fall term.

Laboratory and Field Work: Wednesday and Friday, 1:30-3:30.

Elective for seniors in the course in biology and general science.

6. COMPARATIVE EMBRYOLOGY OF THE SPERMATOPHYTES. Each student will, in the laboratory work, devote his attention to some species that promises special interest or value. The lectures will cover a somewhat wider range of work and will relate the students' work to the recent discoveries in this subject.

Lectures and Conferences: Tuesday, Thursday, and Saturday during the winter term.

Laboratory Work: Wednesday and Friday, 1:30-3:30.

Elective for seniors in the course in biology and general science.

7. THE NATURAL FAMILIES OF SPERMATOPHYTES. A study is made in this course of the main diagnostic characters of the leading families in biological sequence, using as a reference work, Engler and Prantl's *Natuerliche Pflanzenfamilien*. Constant reference will be made to the species of economic import-

tance and to the general geographical distribution of the different families.

Lectures and conferences: Tuesday and Saturday during the spring term.

Elective for seniors in the course in biology.

8. HISTORY OF BOTANY. The plan followed in this course is to trace the origin and development of prominent ideas and to notice the lives of those persons who have made prominent contributions to the various departments of botanical investigation. Constant reference will be made to Sachs's History of Botany.

Lectures and Conferences: Wednesday and Friday during the spring term.

Elective for seniors in the course in biology.

9. BIBLIOGRAPHICAL METHODS AS APPLIED TO BOTANICAL RESEARCH. The purpose of this course is to acquaint the student with the sources of information regarding botanical subjects and to place in his hands the best methods of recording references to this literature. Each student will be required to prepare and present a card-index of the available literature of some selected subject.

Lectures and practical work: Thursday during the spring term.

Elective for seniors in the course in biology.

10. BOTANICAL SEMINAR. The current botanical periodicals received will be assigned to students and reviews of the important articles will be presented and discussed at the meetings. The aim of the seminar is to bring students into contact with the results of the latest research in all languages and to foster the spirit of original research.

Meetings: Alternate Wednesdays during the year.

Optional with all juniors and seniors taking courses in this department.

11. ENTOMOLOGY. The laboratory work is devoted to a study of the internal anatomy and morphology of selected types

of insects. Both the lectures and the recitations will give special attention to economic insects and to the common methods of collecting and breeding insects.

Lectures and Recitations: Tuesday, Thursday, and Saturday during the spring term.

Laboratory Work: Wednesday and Friday, 1:30-3:30.

Required of juniors in the courses in agriculture, biology, and general science and literature.

12. RESEARCH AND THESIS WORK. The following lines of work are open to students during this year:

- a. Comparative embryology of the Spermatophytes.
- b. Ecology and ecological anatomy.
- c. Histology of selected plants or organs.
- d. Physiology and Morphogenesis.
- e. Plant industry.
- f. Entomology.

Seniors in the course in biology who elect botany during the winter term will devote four hours per week in the laboratory during the winter term to the study of their selected subject. The spring term will be devoted to the completion of a thesis on a subject approved by the head of the department. All students who contemplate electing work in this department are requested to give early notice to the instructor in order that proper material for the investigation may be provided.

Zoology and Veterinary Science

Dr. Lewis

It is the purpose of the work offered in this department to give the student not only a general training in the branches offered in the sophomore and junior years, but by special work and electives in the senior year to give thorough training in the practical problems of biology. The work in veterinary science is intended more especially for students of agriculture, and is planned with the idea of giving thorough and practical information regarding the diseases of domestic animals. An outline of the work follows.

1. PHYSIOLOGY. The fall term of the freshman year is devoted to instruction in elementary physiology by lectures, text book, and models. Required of all freshmen.
2. ZOOLOGY. Required of all students except those in the engineering courses, in the fall term of the sophomore year. The work includes a systematic study of animal life with laboratory work in dissection and classification.
3. MATERIA MEDICA. Required of students specializing in biology, in the fall term of the junior year. A study of the origin and history of drugs, their physiological and therapeutic action.
4. VETERINARY MEDICINE. Winter term of the junior year, for specializing students only. A study of the most common diseases of domestic animals, including those that are contagious, infectious, or that may be communicated to man.
5. CELLULAR BIOLOGY. For specializing students, junior year, spring term. A detailed study of the general principles of biology.
6. EMBRYOLOGY. For specializing students, senior year, fall term. Lectures on general embryology. A detailed study of the embryology of the chick, outlined by Foster and Balfour. Each student will be required to mount a series of microscopic slides as a part of the work.
7. BACTERIOLOGY. Required of all except engineering students, senior year, winter and spring terms. This is a general course in bacteriology, and students are required to be thoroughly familiar with laboratory methods. This work is carried on in connection with histology and pathology during the same terms, making a thorough study of bacteria as the cause of disease, and their effect on the animal organism. Pathology is required only of specializing students.

German and Latin

Professor Tucker.

The courses in German and Latin run through the freshman, sophomore, and junior years of the college. All courses lead-

ing to a degree include a certain amount of one or the other of these languages. This amount can be obtained by reference to the detailed schedules. One of the main objects of the courses is to give the student such a knowledge of German and Latin as will be of practical value to him in the study of the sciences. Throughout each course the technical relation of the language to the work of the institution is pointed out, explained, and emphasized. At the same time the other objects of language study are not neglected: the study of the language in and for itself, as a means of general culture, and as a prerequisite to a more intelligent and more comprehensive study of the vernacular. The student is therefore drilled thoroughly in the underlying principles, encouraged to make frequent comparisons, and led not only to look from his own into the foreign language but from the foreign into his own. The courses in detail are as follows:

GERMAN. Freshman Class.—The work of this year is devoted to a thorough drill in punctuation, the mastery of the form, and inflections of the various parts of speech, the study of such rules of syntax as can be introduced in a course of one year, and the reading of such elementary German as will bridge the space between German for Americans and German for Germans. Regular exercises in translation from English to German are also required.

Text books. Harris's German Grammar; Guerber's *Maerchen und Erzaehlungen* I and II; Andersen's *Bilderbuch ohne Bilder*. (Class meets three times a week throughout year.)

Sophomore Class. The work of this year is practically a continuation of that of the freshman year. A broader, more thorough, and more systematic study of grammar is taken up; larger and more varied texts are read and criticised in class. The composition work consists of written exercises handed in to the teacher and corrected by him.

Text books. Joynes-Meissner's German Grammar (complete); Storm's *Immensee*; Schiller's *Der Neffe als Onkel*; Baumbach's *Der Schwiegersohn*; Lessing's *Minna von Barnhelm*. (Class meets three times a week throughout session.)

Junior Class. It is the aim of this course to broaden the student's vocabulary and knowledge of the language and literature by copious reading from standard German authors and by the study of German literature under the guidance of a suitable manual. The composition work will be continued, and one term of this year will be devoted to the study of scientific German.

Text books. Hoffman's *Historische Erzaehlungen*; Freytag's *Soll und Haben*; Schiller's *Wilhelm Tell*; Dippold's Scientific German Reader; Hosmer's German Literature. (Class meets three times a week throughout session.)

LATIN. Freshman Class. This class is employed mainly in mastering the forms of nouns, pronouns, verbs, adjectives and adverbs and in acquiring a copious vocabulary. The elementary rules of syntax are also studied and carefully explained. Careful attention is given to the translation of English into Latin and to the translation of such Latin as the time will permit.

Text books. Collar and Daniell's First Latin Book; Collar's *Via Latina*. (Class meets three times a week throughout session.)

Sophomore Class. The work of this year is devoted to the study of Latin prose and the more difficult principles of Latin syntax. The selections for reading are supplemented by notes and grammatical references by the teacher. It is the purpose of these notes to assist in *accurate* translation, as well as to enable the student to see for himself the practical application of the rules of grammar. Weekly exercises in composition.

Text books. Caesar, *Books I, II, and V*; Cicero, *In L. Catilinam*, *Orationes I and II*; Cicero, *Pro Archia Poeta*; Allen and Greenough's Grammar; Collar's Latin Prose Composition.

Junior Class. The work of this class will be along the same lines as that of the preceding year, with more special reference to Latin poetry, and to the principles of prosody and versification. Throughout all the courses an attempt is made to secure

a high degree of mental training, as well as to teach Latin as an invaluable aid to the study of English.

Text books. Vergil, *Books I-III*; Horace, *Odes* and *Satires*; Allen and Greenough's Grammar; Wilkin's Primer of Latin Literature.

History and Political Economy

Professor Hutto.

In the department of History and Political Economy there are offered English history, political economy, constitutional law, sociology, the laws of business, political and industrial history of the United States, general history, and psychology.

1. ENGLISH HISTORY. This subject is taught in the sophomore year during the winter term and is designed to prepare the student for a clearer view of English literature and his further study of American history and forms of government. Text book used is by D. H. Montgomery, "Leading Facts of English History."

2. POLITICAL ECONOMY. Junior year, fall term. The nature and laws of wealth, labor, capital, money, credit, taxation, production, and distribution are taught with special reference to the industrial arts.

3. CONSTITUTIONAL LAW. Junior year, winter term. The text book used is by William W. Crane and Bernard Moses, "An Introduction to the Study of Comparative Constitutional Law."

4. SOCIOLOGY. Junior year, spring term. The student is taught the origin and scope of society; the natural history of a society; social anatomy; social psychology, and the different suggestions of reform. The text book is by Small and Vincent, "An Introduction to the Study of Society."

5. LAW. Senior year, fall term. This study is carried through the full term with recitations twice a week. The subjects considered are covered in a course of lectures, 28 in number,

and give from a business standpoint the nature of contracts, sales, negotiable paper, interest, agency, partnership, bailment, common carriers, real estate, and the forms of business paper.

6. POLITICAL AND INDUSTRIAL HISTORY OF THE UNITED STATES. Senior year, winter and spring terms. The history of the United States is studied in the preparatory department or in other schools; but it is thought that a more philosophical view of the subject should be afforded the student when he reaches maturer years. This study is carried through the fall term, the class reciting three times a week. Text book is by D. H. Montgomery, "Leading Facts of American History."

7. GENERAL HISTORY. This subject is carried through the winter and spring terms of the senior year. After a general view of oriental civilizations, with special reference to those which noticeably affected subsequent conditions in Europe, special attention is given to Grecian and Roman history. The period of the middle ages is then taken up, followed by a study of modern history. It is the constant thought to have the student see something more in this subject than unrelated facts and dates—to trace causes and results, and to get at the story of the development of the race.

8. PSYCHOLOGY. This subject is carried through the winter and spring terms of the senior year, the student reciting twice a week. While the student is invited to discuss such prominent theories as double consciousness, mental evolution in man, hallucination, hypnotism, genius, etc., he is constantly drilled in the practical rules for the proper development of the perceptive faculty, the cultivation of imagination and memory, and the proper direction of the emotions and the will. Text book is by Reuben Post Halleck, "Psychology and Psychic Culture."

Domestic Economy

Miss Gardiner

The purpose of introducing the study of domestic economy into the college course is to afford a training in the special sub-

jects which must be considered in the arrangement and management of every home. The best provision for the material wants of the household can be made only by those who have been trained for this work; and such a training is not only practical from a utilitarian point of view, but it is educative in the best sense. It is believed that by the practical and scientific study of home problems young women will come to see more than mere routine in the household duties. The work in this department has been arranged consecutively so that the instruction received one term prepares the student for the next term's work; and the endeavor is to have it all correlated with the work of the other departments. This work is not planned to be given separately from other college studies; it is but one of the many lines of study provided for the young women of the college, and is subject to the usual regulations regarding entrance requirements, examination, and class records. A brief outline of the work planned for the coming year follows.

1. SEWING. Freshman Year, Fall Term. The student receives instruction in the elements of sewing, including different stitches, seams, hems, darning, etc., and the different fibers and fabrics—their preparation and manufacture. Order, neatness, and care of material are insisted upon.

2. SEWING. Freshman Year, Winter Term. The work in sewing is continued, and consists of drafting, cutting, and making plain garments, underwear, shirt waists, and cotton dresses; use of sewing machines.

3. COOKING. Freshman year, spring term. The first term's work in cooking consists of practical work in the preparation of the common, simple foods, and a study of the character and composition of food materials. Along with this first food work the study of hygiene is begun, which considers the health of individuals as dependent upon food, personal cleanliness, and proper habits. The desire is to show how a correct knowledge of the laws of nature is necessary for the preservation of health and strength.

4. COOKING. Sophomore year, winter term. The practical work in cooking is continued this term, and includes the study of food combinations, along with dining room work, marketing, and dietary study; also lectures on laundry work.

5. COOKING. Junior year, fall term. During the first half of this term the students are given practical work in the preservation of foods—canning, preserving, pickling and jelly making. The second half of the term they study home sanitation, invalid cookery, and care of the sick.

6. SEWING. Junior year, winter term. The work in the sewing department is resumed this term and the students continue dressmaking. Pattern drafting and dress cutting are taught, and the pupils become thoroughly familiar with a good and reliable dress cutting system. A lined dress is made and due attention is given to the study of form and color.

7. SEWING AND COOKING. Junior year, spring term. The first half of this term is given to further practical work in sewing, making of fancy waist, and tailor suit. During the second half of the term the students receive instruction in invalid cookery and care of the sick.

Public Speaking

Arrangements have been made by which systematic training in public speaking will be given in connection with the department of English, the work being given for the present by the President of the college. It will be required of sophomores and juniors during the winter term.

Geology and Mineralogy

A course in general and economic geology is given in the senior year. As stated on another page (see Professor Holter's statement under "Chemistry") the college is well equipped for practical and scientific work in mineralogy.

Stenography and Typewriting

Miss Holt

Those desiring to enter this department must be prepared at least to enter the freshman class. Students having a good common school education may finish the course in shorthand in from six to nine months. The length of time required to complete the course depends entirely upon the energy, ability, and previous education of the student. The general requirements of a competent stenographer do not consist simply in the ability to write shorthand. There must be a knowledge of composition, punctuation, capitalization, grammar, spelling, and the proper arrangement of sentences. For this reason we require students before finishing the course to pass a satisfactory examination upon the subjects named above in addition to the regular examination in shorthand.

Typewriting requires from three to six months of steady application to gain a satisfactory speed. Students studying stenography will also be required to learn typewriting.

In addition to the work done in shorthand and typewriting students are drilled in the use of letter press copying, indexing, letter filing, manifolding, neostyling, and copying by means of hektograph ribbon on pads.

For finishing in this department a speed of one hundred words per minute of new and miscellaneous matter from dictation, the same to be read back accurately and promptly, is required. Upon the type writer the pupil must be able to write thirty words per minute from his shorthand notes, the work to be free from errors.

Printing

Superintendent Gelder

The printing department occupies quarters in the mechanical building. Such students as desire are given instruction in the art of printing and matters relating thereto free of charge. Two courses are pursued. In one the student is taught the use of the implements or tools used in typography, compo-

sition and imposition, correcting proof, and presses and their workings. The other course embraces instruction in spelling, capitalization, syllabication, punctuation, and proof reading. The college and station jobbing work, including catalogues and announcements, is done here, and a monthly publication, *The College Paper*, is issued from the press. Students assist in all this work, and *The College Paper* is a student publication, though speaking officially for the college.

Free-Hand Drawing

Professor Stevens

Drawing begins in the middle of the fall term of the freshman year and continues until the close of the winter term. Thereafter the young women of the class continue the subject to the close of the year, the young men taking shop work or agriculture or horticulture. In brief, the work is summarized as follows: Pencil drawings in outline from blocks and familiar objects; memory sketches; talks on conventionalism and general expression; perspective drawing of casts in light and shade; copying and dictation.

Preparatory Department

Professor Stevens

Miss Overstreet

The scope and character of the work in this department are sufficiently indicated in the statement on page 23.

Laboratory and Field Work

Paramount stress is laid upon the experimental and practical work of the laboratory, and the afternoons are given over to this character of instruction. In agriculture and horticulture, the live stock, the implements of husbandry, the green-house, the forestry plantations, the farm itself with its operations, constitute the laboratory. In mechanical engineering, the wood working shops, machine shops, electrical shops, foundry, and blacksmith shops are in operation for practical work by the

Crouse, Paul G.	-	-	-	-	Tryon
Crume, George	-	-	-	-	Partridge
Denkewalter, Otto P.	-	-	-	-	Spencer, Ind.
Douglass, Reed E.	-	-	-	-	Jennings
Dunn, Samuel A.	-	-	-	-	Dilley
Epperson, Wallace A.	-	-	-	-	Columbia
Gambell, Herman C.	-	-	-	-	Eden, Mo.
Gilbert, J. Carlton	-	-	-	-	Guthrie
Graves, William H.	-	-	-	Silver Springs, Tenn.	
Guynn, Nelson P.	-	-	-	-	Stillwater
Hamblin, Clyde M.	-	-	-	-	Newkirk
Hamlin, Clyde	-	-	-	-	Ceres
Hedges, Fannie G.	-	-	-	-	Seneca, Kans.
Holland, West G.	-	-	-	-	Perry
Jenkins, Frank	-	-	-	-	Seven Oaks
Jones, Frank L.	-	-	-	-	Houston, Tex.
Kidd, John W.	-	-	-	-	Stroud
Knauss, Hester M.	-	-	-	-	Stillwater
Lovett, Amos E.	-	-	-	-	Hunter
Marple, Verne	-	-	-	-	Jennings
Martin, Fred I.	-	-	-	-	Tryon
McBride, John F.	-	-	-	-	Tryon
Millhouse, Allen B.	-	-	-	-	Stillwater
Morris, Grace E.	-	-	-	-	Tekoa, Wash.
Morrison, James L.	-	-	-	-	Cameo
Nelson, Abbie L.	-	-	-	-	Stillwater
Northup, Marian E.	-	-	-	-	Cuba, Kans.
Obanion, Edith O.	-	-	-	-	Pawnee
Oentine, Fred B.	-	-	-	-	Stillwater
Orrick, Roscoe C.	-	-	-	-	Shawnee
Otey, Edith S.	-	-	-	-	Perkins
Owens, Erwin G.	-	-	-	-	Coyle
Parker, Eva G.	-	-	-	-	Cleveland
Peter, J. Arthur	-	-	-	-	Pawnee
Potter, James E.	-	-	-	-	Stillwater
Pound, Frank D.	-	-	-	Bingham, Mo.	
Roberson, Santford I.	-	-	-	-	Stillwater
Rogers, Ola J.	-	-	-	-	Cleveland
Sloan, May B.	-	-	-	-	Pawnee
Smith, Fred I.	-	-	-	-	Roff, I. T.
Stevens, Harry I.	-	-	-	-	Clifton
Stevenson, Frank H.	-	-	-	-	Stillwater
Stroud, Arthur T.	-	-	-	-	Cimarron
Tankersley, Lola M.	-	-	-	-	Goodnight

56 OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

Tarr, William A.	-	-	-	Enid
Thrasher, Paul B.	-	-	-	Enid
Thornberry, Joseph W.	-	-	-	Cleo
Treeman, Fred D.	-	-	-	Perry
Treeman, Ralph W.	-	-	-	Perry
Wallis, Howard L.	-	-	-	Day
Watkins, Michael A.	-	-	-	Enid
Wattson, Robert K.	-	-	-	El Reno
Wheatley, Clifton L.	-	-	-	Stillwater
Whitten, Harry C.	-	-	-	Jennings
Williams, Guy P.	-	-	-	Mehan
Withers, Alpheus C.	-	-	-	Stillwater
Workman, Earl B.	-	-	-	Woodward
Workman, Clarence B.	-	-	-	Woodward

Special Students

Ash, Delia	-	-	-	Stillwater
Atkinson, Alice L.	-	-	-	Luella
Bailey, George N.	-	-	-	Stillwater
Bailey, Leroy W.	-	-	-	Stillwater
Baker, Ollie M.	-	-	-	Council
Barger, George S.	-	-	-	Mehan
Becker, Charles M.	-	-	-	Stillwater
Blair, H. Lola	-	-	-	Stillwater
Bly, Delcena	-	-	-	Morrison
Borden, S. Elizabeth	-	-	-	Perkins
Brady, I. Louise	-	-	-	Oklahoma City
Bras, Ethel M.	-	-	-	Goodnight
Brockner, Ellen E.	-	-	-	Stillwater
Buchanan, Harvey	-	-	-	Woodward
Burke, Edward J.	-	-	-	Perry
Burke, William J.	-	-	-	Perry
Burke, Julia	-	-	-	Perry
Burns, Burness	-	-	-	Stillwater
Canavan, Nellie	-	-	-	Morrison
Chapman, Ralph E.	-	-	-	Stillwater
Cline, Anna M.	-	-	-	Newkirk
Creed, Mattie E.	-	-	-	Osage City
Creed, Mona G.	-	-	-	Osage City
Darnell, Nelle V.	-	-	-	Stillwater
Daugherty, Sina	-	-	-	Stillwater
Dunkle, Arthur C.	-	-	-	Hennessey
Edgerton, Charles O.	-	-	-	Atcheson, Kans.
Edwards, Minnie	-	-	-	Stillwater

Emmerson, Kate	-	-	Morrison
Gallant, Charles E.	-	-	Perry
Gibbs, David W., Jr.	-	-	Lead, So. Dak.
Goff, Thomas T.	-	-	Stillwater
Gulick, Horace S.	-	-	Sac and Fox
Hanner, Walter	-	-	Stillwater
Harsh, James E.	-	-	Geary
Hartenbower, Cleveland	-	-	Orlando
Hastings, Alice A.	-	-	Orlando
Henry, L. Boyd	-	-	Perry
Heren, Frank L.	-	-	Jennings
Holmes, Pearl V.	-	-	Orlando
Houston, Varley D.	-	-	Stillwater
Hunter, Lillie M.	-	-	Perry
Jenkins, Roy H.	-	-	Seven Oaks
Jones, Aaron R.	-	-	Stillwater
Jones, Olin W.	-	-	Mangum
Jones, Samuel F.	-	-	Carrier
Johnston, John C.	-	-	Blackwell
Knox, L. Lea	-	-	Goodnight
Knox, Arthew I.	-	-	Goodnight
Knox, Dessie L.	-	-	Goodnight
Lauderdale, William P.	-	-	Yale
Lincoln Arthur S.	-	-	Stillwater
Mayginnes, Alpha	-	-	Stillwater
McBride, Robert J.	-	-	Stillwater
McCartney, Fred W	-	-	Stillwater
McFarland, V. Roy	-	-	Ripley
McHarg, Tess M.	-	-	Woodward
Miller, Maud I.	-	-	Stillwater
Millhollen, Ray C.	-	-	Stillwater
Moore, Harry W.	-	-	Morrison
Mowre, Asa E.	-	-	Enid
Narans, A. Floyd	-	-	Perkins
Newcomb, Beulah F.	-	-	Fairfield, Ia.
Norris, Rebecca M.	-	-	Morrison
Norris, Frances M.	-	-	Morrison
Offill, Alva O.	-	-	Tecumseh
Oleentine, Georgia	-	-	Stillwater
Otey, Daniel E.	-	-	Stillwater
Parshall, John R.	-	-	Terlton
Patterson, Edyth A.	-	-	Stillwater
Perry, Alice L.	-	-	Ingalls
Pigg, Julia J.	-	-	Crow Creek, So. Dak.

Potter, Vada M.	-	-	Stillwater
Preston, Lloyd L.	-	-	Newkirk
Price, William C.	-	-	Guthrie
Ray, Jennie L.	-	-	Stillwater
Revard, Lizzie E.	-	-	Pawhuska
Rogers, Julia M.	-	-	Cleveland
Rotchford, Myrtle E.	-	-	Council Grove, Kans.
Sater, Datus E.	-	-	Stillwater
Senft, Ernest E.	-	-	Jennings
Shannon, Lura M.	-	-	Perkins
Shannon, Eva	-	-	Perkins
Slater, Esther B.	-	-	Kingfisher
Smiley, Clara D.	-	-	Ralston
Smith, James S.	-	-	Shawnee
Sollars, Marie B.	-	-	Sinnett
Stewart, Bert	-	-	Sabetha, Kans.
Stowe, L. Dwight	-	-	Stillwater
Straub, Lillian	-	-	Stillwater
Suthard, Alice B.	-	-	Stillwater
Takasugi, Shikanojo	-	-	Tokyo, Japan
Terwilliger, Aurora	-	-	Perkins
Tift, Mattie B.	-	-	Stillwater
Tolford, Grace B.	-	-	Stillwater
Turner, Maycie M.	-	-	Parkland
Vargason, Edna E.	-	-	Stillwater
Walker, Florence K.	-	-	Perkins
Walker, Fay	-	-	Stillwater
Wallace, John M.	-	-	Stillwater
Wallace, Mary P.	-	-	Stillwater
Wells, Agnes D.	-	-	Stillwater
Welter, Stuart J.	-	-	Portales, N. M.
Wilkinson, Mabel M.	-	-	Perry
Wise, M. Celeste	-	-	Ingalls
Woodruff, Sadie	-	-	Perry
Woods, Lloyd L.	-	-	Stillwater
Woods, Lafayette G.	-	-	Sturger, Mo.
Wright, Pearl M.	-	-	Stillwater

Short Course Students (In Agriculture and Mechanics)

Ashmore, Emmet W.	-	-	Stillwater
Boyer, Thomas I.	-	-	Coyle
Burke, William J.	-	-	Perry
Chapman, Ralph E.	-	-	Stillwater
Cole, William T.	-	-	Luther

LaByer, Clarence H.	-	-	-	Stillwater
Land, Susie	-	-	-	Stillwater
Land, John F.	-	-	-	Stillwater
Lessert, Joseph	-	-	-	Blackburn
Lessert, Walter	-	-	-	Blackburn
Loy, Luther J.	-	-	-	Kingfisher
Mann, John D.	-	-	-	Jennings
McElroy, Clarence H.	-	-	-	Jennings
Meek, George W.	-	-	-	Yates
Means, George R.	-	-	-	Stillwater
Millard, Charles E.	-	-	-	Enid
Miller, Charles F.	-	-	-	Enid
Millis, Bessie E.	-	-	-	Stillwater
Morris, Lydia	-	-	-	Marshall
Mullendore, Otto V.	-	-	-	Howard, Kans.
Munsell, Daniel H.	-	-	-	Glencoe
Murphy, Edward M.	-	-	-	Stillwater
Murray, Winfield H.	-	-	-	Stillwater
Noah, Robert H.	-	-	-	West Point
North, Lew J.	-	-	-	Stillwater
Osborn, William	-	-	-	Nashville
Page, Eddie Z.	-	-	-	Carney
Page, Jennie M.	-	-	-	Carney
Payne, Hattie	-	-	-	Stillwater
Payne, Sydna	-	-	-	Stillwater
Pennington, Jesse M.	-	-	-	Glencoe
Pennington, Charles L.	-	-	-	Glencoe
Pierce, Leroy A.	-	-	-	Ingalls
Powers, Nora A.	-	-	-	Stillwater
Powers, Elihu	-	-	-	Stillwater
Rhodes, Rolla A.	-	-	-	Howard, Kans.
Roberson, Lola M.	-	-	-	Stillwater
Sargent, Lloyd, L.	-	-	-	Medford
Scott, Edward B.	-	-	-	Mulhall
Scribbins, Louisa M.	-	-	-	Guthrie
Seger, Jesse M.	-	-	-	Colony
Selph, Harry H.	-	-	-	Stillwater
Selph, Ernest J.	-	-	-	Stillwater
Shaffer, Harry C.	-	-	-	Stillwater
Shorb, Noble M.	-	-	-	Stillwater
Shreves, Otis W.	-	-	-	Ripley
Smith, William A.	-	-	-	Pawnee
Snyder, William L.	-	-	-	Stillwater
Snyder, Walter A.	-	-	-	Stillwater

62 OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

Soper, James	-	-	-	-	Garber
Speer, Minnie V.	-	-	-	-	Tryon
Sprouse, Charles E.	-	-	-	-	Roads, Mo.
Stephens, Cecil C.	-	-	-	-	Yale
Stevens, L. Elizabeth	-	-	-	-	Clifton
Stevens, Ruth	-	-	-	-	Clifton
Stewart, William A.	-	-	-	-	Morvin
Stout, Winifred A.	-	-	-	-	Polo
Sutton, Carrie M.	-	-	-	-	Stillwater
Tarr, George G.	-	-	-	-	Enid
Tweedie, Norman D.	-	-	-	-	Stet, Mo.
Van Eman, Maggie L.	-	-	-	-	Jennings
Van Gilder, Clemmie	-	-	-	-	Stillwater
Vargason, Claude C.	-	-	-	-	Stillwater
Vaughn, Myrtle,	-	-	-	-	Stillwater
Wakefield, Henry E.	-	-	-	-	Mangum
Wantland, Leroy	-	-	-	-	Stillwater
Walker, Rollin C.	-	-	-	-	Stillwater
Wallace, William F.	-	-	-	-	Cropper
Wallace, Jesse E.	-	-	-	-	Blockhouse, Tenn.
Watson, Claude O.	-	-	-	-	Stillwater
Wells, A. Scott	-	-	-	-	Stillwater
Wiley, Raymond C.	-	-	-	-	Stillwater
Williams, Buel H.	-	-	-	-	Stillwater
Williams, Arthur D.	-	-	-	-	Stillwater
Williams, Emma J.	-	-	-	-	Stillwater
Wilson, Alpha	-	-	-	-	Stillwater
Wing, George H.	-	-	-	-	Tryon
Winsworth, Merton L.	-	-	-	-	Clare
Wisner, Kenton J.	-	-	-	-	Stillwater
Woods, Lafayette G.	-	-	-	-	Sturgeon, Mo.
Woods, Lloyd L.	-	-	-	-	Stillwater
Young, Clark	-	-	-	-	Perry
Zwirtz, Leo C.	-	-	-	-	Stillwater
Total	-	-	-	-	414
Repeated	-	-	-	-	10
Net Total	-	-	-	-	404

Curry, Jesse F.	-	-	-	Stillwater
Dougan, Frank E.	-	-	-	Pawnee
Eyler, John E.	-	-	-	Ralston
Eyler, Albert E.	-	-	-	Ralston
Guth, Charles F.	-	-	-	El Reno
Harrison, Paul M.	-	-	-	Stillwater
Jackson, Wilber C.	-	-	Highland Station, Kans.	
Jones, Samuel F.	-	-	-	Carrier
Jueschke, Frank F.	-	-	-	Kingfisher
Light, Alba L.	-	-	-	Gage, Kans.
McClellan, Carl C.	-	-	Clay Center, Kans.	
Millhollen, Ray C.	-	-	-	Stillwater
Moore, William S.	-	-	-	Pawnee
Mowre, Asa E.	-	-	-	North Enid
Munnell, Herbert L.	-	-	-	Webster, Neb.
Potter, James E.	-	-	-	Stillwater
Pound, Frank S.	-	-	-	Bingham, Mo.
Shreves, Otis W.	-	-	-	Ripley
Tyer, James T.	-	-	-	Cleveland
Wakefield, Henry E.	-	-	-	Mangum

Preparatory

Allnutt, Maggie W.	-	-	West Point
Barber, Clarence D.	-	-	Karoma
Baxter, Joseph J.	-	-	Orlando
Bellis, Clara M.	-	-	Stillwater
Blake, Claude	-	-	Stillwater
Bowles, Finley	-	-	Pawnee
Briggs, Nellie	-	-	Ripley
Brown, Charles W.	-	-	Belmont
Burkholder, Lelia*	-	-	Jennings
Burkholder, Ethel	-	-	Jennings
Burkholder, Mabel	-	-	Jennings
Burnett, Roy E.	-	-	Dixie
Clark, Daisy A.	-	-	Perkins
Clark, Arthur	-	-	Skeleton
Clarke, J. Edward	-	-	Tryon
Coke, Brout C.	-	-	Stillwater
Cotrell, Elsie A.	-	-	West Point
Coverdale, Ruth I.	-	-	Stillwater
Cox, Ernest J.	-	-	Tryon
Crawford, Mabel C.	-	-	Stillwater
Cross, Dana W.	-	-	Stillwater
Cross, Frank D.	-	-	Stillwater

**Deceased*

60 OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE

Crouse, Ada E.	-	-	-	Troy
Crume, James M.	-	-	-	Partridge
Curry, Jesse F.	-	-	-	Stillwater
Custer, Harry L.	-	-	-	Troy
Dearen, James P.	-	-	-	Thomasville
Dysart, Elmo C.	-	-	-	Stillwater
Fairechild, Henry L.	-	-	-	Marena
Flannigan, Maggie A.	-	-	-	Mulhall
Flesner, Fohlka N.	-	-	-	Stillwater
Flesner, Meta	-	-	-	Stillwater
Flesner, Henry J.	-	-	-	Stillwater
Flesner, Helena	-	-	-	Stillwater
Fritch, Lee	-	-	-	Cushing
Galbreath, Sherman E.	-	-	-	Yorktown, Iowa
Gehr, Alpha	-	-	-	Orlando
Gibson, Andrew J.	-	-	-	Perkins
Giger, Calvin E.	-	-	-	Stillwater
Golliher, Bessie A.	-	-	-	Sac and Fox
Guynn, James J.	-	-	-	Stillwater
Hagan, Cornell E.	-	-	-	Perry
Hainline, L. Grace	-	-	-	Odessa, Mo.
Hall, Grace N.	-	-	-	Stillwater
Hall, Howard W.	-	-	-	Stillwater
Handy, Ella	-	-	-	Stillwater
Hardy, Sibley R.	-	-	-	Stillwater
Hardy, Ida M.	-	-	-	Stillwater
Harrelson, Harry C.	-	-	-	Simmons, Mo.
Harrison, Ruby F.	-	-	-	Mexico, Mo.
Hoge, Clarence J.	-	-	-	Billings
Hoggatt, Jesse B.	-	-	-	Yates
Holmes, Otis W.	-	-	-	Stillwater
Houston, Louretta	-	-	-	Stillwater
Hungerford, Earl B.	-	-	-	Alvaretta
Hungerford, Charles W.	-	-	-	Alvaretta
Hungerford, Eva J.	-	-	-	Alvaretta
Janeway, Lucile S.	-	-	-	Stillwater
Jones, James G.	-	-	-	Day
Kane, Lucy A.	-	-	-	Ripley
Kearns, Leila E.	-	-	-	Stillwater
Kearns, Rua G.	-	-	-	Stillwater
Kellough, Anna R.	-	-	-	Sinnett
Kirkpatrick, Eva M.	-	-	-	Stillwater
Knauss, Elmer J.	-	-	-	Stillwater
LaByer, Nora	-	-	-	Stillwater

Alumni**1896**

Arthur W. Adams, Book-keeper	-	Stillwater, Okla.
J. Homer Adams, Student, Univ. of Kans.,	-	Lawrence, Kans.
Frank E. Duck, Farmer,	-	Stillwater, Okla.
A. Edward Jarrell, Stenographer,	-	Chicago, Ill.
Ervin G. Lewis, Bank Cashier,	-	Roff, I. T.
Oscar M. Morris, Horticulturist	-	Stillwater, Okla.

1897

George W. Bowers, Manager dry goods store,	Ripley, Okla.
Andrew N. Caudell, Entomologist Ag. Dept.,	Washington, D. C.
Jessie O. Thatcher, Teacher city schools,	Stillwater, Okla.

1898

John T. Clark, Railway mail clerk,	-	Newton, Kans.
Augustus G. Ford, Graduate student,	-	State College, Pa.
Norris T. Gilbert, Assistant bank cashier,	-	Medford, Okla.
Thomas J. Hartman, Bank cashier,	-	Deer Creek, Okla.
Clinton Morris, Chemist, iron foundry,	-	St. Louis, Mo.
Emma H. (Swope) Dolde, At home,	-	Stillwater, Okla.
Blanche M. Wise, Teacher,	-	Ingalls, Okla.

1899

Noah P. Bullock, Lumber salesman,	-	Stillwater, Okla.
Clarence R. Donart, Bank clerk,	-	Stillwater, Okla.
Minnie A. Dysart, Telephone Operator,	-	Stillwater, Okla.
Francis M. Greiner, Chemist, wall paper manu.,	Buffalo, N. Y.	
Cora A. Miltimore, Ass't librarian, College,	-	Stillwater, Okla.
S. Earl Myers, Book salesman,	-	Stillwater, Okla.
Arthur B. McReynolds, Ass't chemist, Ex. Sta.,	-	Stillwater, Okla.
Charles E. Regnier, Bank cashier,	-	Oklmulgee, I. T.

1900

Arthur W. Anderson, Teacher,	-	Woodward, Okla.
Cora M. Donart, Teacher,	-	Stillwater, Okla.
Thomas T. Goff, Merchant,	-	Pawnee, Okla.
John S. Malone, Ass't in Agr., College,	-	Stillwater, Okla.
Louis C. Miller, Division of Forestry,	-	Washington, D. C.
George W. Stiles, Jr. Bureau of An. Ind.,	-	Washington, D. C.



3 0112 105760745

